The Library of Congress National Recording Preservation Plan

December 2012



National Recording Preservation Board
OF THE LIBRARY OF CONGRESS

COUNCIL ON LIBRARY AND INFORMATION RESOURCES
AND THE LIBRARY OF CONGRESS

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Sponsored by the

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Council on Library and Information Resources
and The Library of Congress
Washington, D.C.

The National Recording Preservation Board

The National Recording Preservation Board was established at the Library of Congress by the National Recording Preservation Act of 2000. Among the provisions of the law are a directive to the Board to study and report on the state of sound recording preservation in the United States. More information about the National Recording Preservation Board can be found at http://www.loc.gov/rr/record/nrpb/.

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Cover images: All photographs are from the collections of the Library of Congress.

(*top row, left to right*) Thomas Edison and his tinfoil phonograph, April 1878, Brady-Handy Photograph Collection, Prints and Photographs Division; Rosario Bourdon conducting the Victor Orchestra in an acoustic recording session, ca. 1915-1920, Motion Picture, Broadcasting and Recorded Sound Division; William P. Gottlieb, photographer, Sarah Vaughan at Café Society (Downtown), New York, ca. September 1946, William P. Gottlieb Collection, Music Division.

(*center row, left to right*) Mary Margaret McBride broadcasting with five of the 1950 "Women of the Year" chosen by women's editors of U.S. newspapers, (from left) Dorothy Roe (in charge of the poll), Millicent Carey McIntosh (education), Pearl Buck (literature), Gloria Swanson (cinema), Vivian Kellems (business), and Mary Margaret McBride (radio), December 6, 1950, Mary Margaret McBride Collection, Motion Picture, Broadcasting and Recorded Sound Division; President Franklin Delano Roosevelt, Prints and Photographs Division; John Vachon, photographer, daughter of FSA (Farm Security Administration) rehabilitation borrower listening to phonograph, Crawford County, Illinois, May 1940, FSA/OWI Collection, Prints and Photographs Division.

(*bottom row, left to right*) An archivist at a U.S. Office of War Information (OWI) studio in London during World War II shelves an ABSIE (American Broadcasting Station in Europe) 16-inch lacquer-coated instantaneous disc, the standard format for recording radio broadcasts at the time, ca. 1944-1945, OWI Collection, Prints and Photographs Division; Library of Congress Recording Laboratory engineers Jerome Wiesner (foreground) and John R. Langenegger (rear) examining grooves of a record while it is being cut on a Scully recording machine (Wiesner became the science advisor to Presidents Kennedy and Johnson, and the president of MIT), ca. 1940, Manuscript Division; Eugene DeAnna, photographer, audio preservation specialist Patrick Smetanick reformatting audio at the Packard Campus for Audio Visual Conservation, Library of Congress, October 2012, Motion Picture, Broadcasting and Recorded Sound Division.

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This plan was written by Brenda Nelson-Strauss, Alan Gevinson, and Sam Brylawski, under the direction of Patrick Loughney.

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The recommendations in this plan derive from the work of six task forces convened by the Library of Congress. The Library is greatly indebted to the members of these groups for their time and the care and creativity they devoted to this project.

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Foreword by the Librarian of Congress

> National Recording Preservation Act of 2000, SEC. 111. ESTABLISHMENT OF PROGRAM BY LIBRARIAN OF CONGRESS. [Public Law No: 106-474]
>
> *(a) IN GENERAL—The Librarian shall . . . implement a comprehensive national sound recording preservation program, in conjunction with other sound recording archivists, educators and historians, copyright owners, recording industry representatives, and others involved in activities related to sound recording preservation, and taking into account studies conducted by the Board.*

American creativity has transformed the soundscape of much of the world. The Library of Congress has capped its long leadership in preserving America's audiovisual heritage by completing and publishing its first-ever National Recording Preservation Plan.

The Library of Congress's history of active leadership in this field began in the early years of the twentieth century. With the passage of the National Recording Preservation Act of 2000, Congress reaffirmed this leadership and directed its Library to plan and coordinate a national effort to develop policies and programs to save our nation's recorded sound history and ensure its accessibility to future generations. At a time when libraries and other cultural institutions, as well as the recording industry, are struggling to save more than 130 years of analog recording history and navigate the technical and marketplace challenges of providing public access in the digital age, the publication of this plan is a timely as well as historic achievement.

The National Recording Preservation Plan is the cumulative result of more than a decade of work by the Library and the National Recording Preservation Board. It is America's first significant step toward organizing an effective national collaboration to meet the challenges of saving our recorded sound cultural patrimony.

The National Recording Preservation Plan follows upon the Library's fulfillment of other mandates that Congress assigned to its Library in the National Recording Preservation Act of 2000. Since then, the Library of Congress has laid the foundation for the plan and increased public awareness of the need to preserve our nation's recorded sound history and culture. Those mandates included the establishment of the National Recording Preservation Board in 2002; annual announcements of the National Recording Registry starting in 2003; from 2005 to 2009, the publication of five landmark studies on specific issues affecting sound recording preservation and access; and in 2010, the publication of *The State of Recorded Sound Preservation in the United States: A National Legacy at Risk in the Digital Age*, the first comprehensive survey of recorded sound preservation in America ever undertaken.

Digital technologies have fundamentally changed our lives in the twenty-first century. In the born-digital age, file-based recording has become the predominant means of audio production, and digital audio files now are accepted as the standard format for preserving analog recordings. *The State of Recorded Sound Preservation in the United States* called attention to the great opportunities and challenges that the digital age has brought us. At the click of a mouse, listeners can hear music and talk from the far corners of the world. Digital technologies now aid preservation reformatting significantly. Yet, as the study acknowledged, great challenges—technical, organizational, and economic—that have accompanied the shift to digital preservation remain unresolved. The National Recording Preservation Plan recommends that collaboration among all stakeholders will be needed to take full advantage of the promise of the digital revolution and confront the daunting challenges of recorded sound preservation.

The major findings of the study showed that the challenges to saving America's recorded sound history in the digital age can be generally divided into four categories: conservation and preservation reformatting; barriers to public access; the need for professional education; and outdated laws that impede both preservation and access. Based on these findings, the Library enlisted Brenda Nelson-Strauss of Indiana University to direct the effort to develop a collaborative national plan and coordinate the work of six task force groups charged with developing specific recommendations in the areas of education, professional training, and research; digital audio preservation and technical standards; copyright and public access; public-private partnerships; collection management; and fundraising and promoting public awareness of recorded sound preservation.

The members of the task forces included experts from public and private institutions and organizations across the country in the fields of law, audio preservation, library/archive management and public service, business, digital technology, and cultural history. Working independently and on a voluntary basis, the task force members found time in their busy schedules for many conference calls over a period of more than a year.

The multi-talented staff at the Library of Congress distilled the preliminary recommendations of the task forces down to the 32 recommendations presented in this plan. These recommendations are thematically organized under headings for:

- Building the national sound recording preservation infrastructure
- Blueprint for implementing preservation strategies
- Promoting broad public access for educational purposes
- Long-term national strategies

In coordinating, guiding, and recording the proceedings of task force meetings, Ms. Nelson-Strauss was assisted by the Library's dedicated staff that works with the National Recording Preservation Board: Steve Leggett, Cary O'Dell, and Donna Ross. All of us are grateful to Ms. Nelson-Strauss for directing the development of this study, and to Alan Gevinson and Sam Brylawski for writing the plan with her. I want to single out Mr. Brylawski for special praise for his tireless and effective leadership in the field of recorded sound history and preservation over many years, and for his valuable assistance to me and the work of the National Recording Preservation Board. I

also thank the many task force members from across the country who volunteered their time and contributed so many important ideas; the members of the National Recording Preservation Board; and Gene DeAnna and his staff of the Library's Recorded Sound Section at the Packard Campus for Audio Visual Conservation.

The Library's efforts to advance the national cause of recorded sound preservation took a quantum leap forward in 2007 when the Packard Humanities Institute donated to the Library of Congress—and the American people—the $200 million Packard Campus for Audio Visual Conservation. This state-of-the-art facility, located in Culpeper, Virginia, was designed and constructed under the personal direction of David Woodley Packard for the purpose of preserving the Library's unparalleled audiovisual collections and to assist institutions throughout the country that are equally committed to preserving and providing public access to our national moving image and recorded sound cultural heritage.

The effort to develop this national plan has been long and challenging. America's audio history has been vast, creative, and decentralized since the nineteenth century. Conceiving a national plan involves taking into account the concerns and interests of many public and private stakeholders.

Saving America's recorded sound history and culture will require a concerted effort lasting many years. Keep in mind while reading the plan that its recommendations require a deliberately long view. The Library published its national plan for preserving the nation's film heritage in 1994. Great progress has since been made in implementing its recommendations, but the efforts continue, much remains to be done, and similar long-term commitment and collaboration will be necessary to achieve many of the recommendations in the National Recording Preservation Plan.

A national consensus has now been achieved in identifying the problems to be solved. If individuals and institutions in the public and private sectors commit to working together to implement the prudent recommendations of this broad-based national plan, we can save our recorded sound heritage for future generations.

—*James H. Billington*
Librarian of Congress

Executive Summary

The nation's libraries, archives, and museums hold some 46 million sound recordings, millions of which are in need of preservation. Millions of additional recordings, often unique and also in need of preservation, are held by record companies, performing artists, broadcasters, and collectors. In the digital age, new technology offers great promise for preservation initiatives. Transitioning to digital audio preservation, however, has created significant technical, organizational, and funding challenges for those institutions responsible for preserving recorded sound history for future generations.

The National Recording Preservation Plan has been devised to provide a blueprint to "implement a comprehensive national sound recording preservation program," as mandated in the National Recording Preservation Act of 2000. Congress specified that the program established by the Librarian of Congress under this legislation "shall … increase accessibility of sound recordings for educational purposes." Preserved recordings can benefit the public only if they are made available for listening. Technological, institutional, and legal impediments to broadened access create daunting challenges for the national preservation effort. This plan identifies the audio field's most important preservation and access problems and offers recommendations for surmounting them.

Congress recognized that a national sound recording preservation program should be implemented through a concerted effort involving, in addition to the Library of Congress, "other sound recording archivists, educators and historians, copyright owners, recording industry representatives, and others involved in activities related to sound recording preservation, and taking into account studies conducted by the Board." This plan, derived in large part from landmark studies commissioned by the National Recording Preservation Board and published as a result of the National Recording Preservation Act, emphasizes that coordination among public and private stakeholders in the recorded sound community will be essential for achieving a successful national sound recording preservation program.

The National Recording Preservation Plan's recommendations for implementing a coordinated preservation effort fall into four interrelated categories: preservation infrastructure, preservation strategies, access challenges, and long-term national strategies for preservation and access. Some recommendations can be achieved in the near future. Long-term initiatives may take a generation.

Preservation Infrastructure

Most of the nation's audio collections are stored under conditions that contribute to their deterioration. Many endangered analog formats must be digitized within the next 15 or 20 years before further degradation makes preservation efforts all but impossible. Coordinated efforts are needed to expand the physical infrastructure necessary to store recorded sound collections at low temperature and humidity in order to slow down the deterioration process. Developing digital reformatting and storage capabilities sufficient to meet the preservation challenge can be achieved only through coordinated efforts to use existing facilities more efficiently and to develop new ones.

Educational programs must be created to train specialists to work in these facilities. An Audio Preservation Resource Directory website will support educational initiatives, keep professionals informed of latest developments in the field, and increase public awareness about recording history and preservation challenges. A coordinated research agenda must be maintained to support the development of new technologies in order to meet some of audio preservation's most difficult challenges.

Preservation Strategies

Digital audio files have become the accepted preservation format for analog recordings at risk of deteriorating. The nature of digital files and digital file storage necessitates ongoing, active management that begins early in the lifecycle of files and requires continuing attention. Collection managers will need strategies, models, and guidelines to help them adhere to best practices, determine priorities for digitization, and form public-private partnerships to allow them to cost-effectively engage in expensive reformatting initiatives. New tools, implementation models, and efficient workflows will be needed to help engineers and managers from a variety of organizations meet standards and best practices for creating preservation-quality digital files and testing the performance of systems. Hardware and software developers, working with guidelines established by the preservation community, can aid the preservation effort by incorporating standardized metadata schemas that are cross-platform and enduring, and creating digital audio files that are "born archival" (i.e., files formatted for archiving at the time of their creation). Open source audio preservation software can play synergistic roles in relation to core systems developed by commercial entities. The preservation community should collaboratively develop management strategies and practical operational procedures to help recorded sound collection managers and technicians meet the challenges of digital preservation. These goals can be furthered through resources included in the Audio Preservation Resource Directory website and by efforts led by other national organizations.

Access Challenges

In the digital age, many technological barriers to access have disappeared; yet, expanding access to audio recordings remains problematic. There is currently no efficient way for researchers or the general public to discover what sound recordings exist and where they can be found. Despite the development of the Internet, few historical recordings can be made available online legally because of idiosyncrasies in the U.S. copyright law. Federal copyright protection does not apply to recordings produced before February 15, 1972, leaving them subject to a complex network of disparate state laws. For so-called "orphan works," copyright owners cannot be identified or located. Many rights holders have not permitted researchers or members of the general public to listen to recordings they legally control outside the limited scope of research facilities maintained by research institutions. Secure streaming to distant locales for research purposes could offer a solution to these problems, but institutions rarely can provide this service because of the challenges of licensing audio for research purposes efficiently and economically.

Investing government resources in the preservation of audio recordings is rarely perceived as being in the public interest when access to the preserved recordings is severely restricted. Broad access to historical recordings thus generates support for audio preservation. Such access can be achieved through developments along three avenues. First, the plan recommends improving the processes of discovery and cataloging through collaborative efforts to create a national discography and directory of recorded sound collections, and establishing best practices for audio cataloging. Second, copyright legislation reform should be enacted to apply federal copyright protection to sound recordings produced prior to February 15, 1972. This will create a legal framework for libraries and archives to copy and disseminate orphan works and for revising section 108 of the U.S. Copyright Act, which grants crucial exceptions to the exclusive rights of copyright owners and thus allows libraries and archives to reproduce materials for purposes of public access to further private study, scholarship, and research. Third, organizational initiatives should be undertaken to facilitate broadened legal public access to recorded sound collections. Such initiatives include license agreements for streaming; a shared digital preservation access network for sound recordings that offers a secure location for the storage of derivative files digitized by partner libraries and archives, and a managed licensing system for sharing of access copies; a labels ownership database to facilitate obtaining authorizations to stream recordings; broadened access to sound recordings that have been digitized by the Library of Congress; and codes of best practices to help clarify libraries' and archives' fair use rights to preserve and make sound recordings available to patrons.

Long-Term National Preservation and Access Strategies

To assist the Library of Congress in coordinating and implementing an effective long-term national preservation program and to raise

public awareness about sound recordings and preservation, the Library of Congress National Recording Preservation Board must expand its activities and responsibilities. An advisory Executive Leadership Committee on Recorded Sound Preservation, comprising top executives from recording companies and heads of sound recording archives, will ensure that a commitment to assist the Library of Congress in implementing recommendations in this plan will continue throughout the years it will take to achieve the goals of the national sound recording preservation program. A coordinated national collections policy will help ensure that a greater number of significant published recordings are acquired and preserved by the Library of Congress and partner institutions through the Copyright Office, including works published only in online versions. The collections policy will encourage statewide and regionally based programs to collect and preserve locally produced recorded sound, and will develop strategies and tools to collect and preserve radio broadcasts. Licensing agreements for downloading recordings must be amended to allow for educational use. Fundraising initiatives must be developed, encouraged, and coordinated. Progress in achieving the national sound recording preservation program should be assessed on a regular basis.

1. Building the National Sound Recording Preservation Infrastructure

The State of Recorded Sound Preservation in the United States: A National Legacy at Risk in the Digital Age, a report commissioned by the National Recording Preservation Board of the Library of Congress and published in August 2010, presents a challenge to those responsible for the preservation of the nation's sound recording heritage. In an age when digital technology has become "the format of choice to achieve the objectives of recorded sound preservation," few of the public institutions, libraries, and archives currently in possession of the bulk of the nation's recorded sound heritage—some 46 million recordings[1]—"have the facilities, playback hardware, and staff resources to preserve recordings," the report reveals. Most of these institutions do not have the capacity to build the information technology infrastructure necessary to produce digital files or to ensure the integrity of their digital preservation files over the long term (Council on Library and Information Resources [CLIR] and Library of Congress 2010, 69).

Funding for audio preservation, the report notes, is "decentralized and inadequate." Although the creation of the Library of Congress Packard Campus for Audio Visual Conservation has furthered progress in the field, the study maintains that "[r]esources must be invested not only in rescuing specific collections but also in developing techniques and methodologies that will enable more institutions to afford to assume a share of the work" (CLIR and Library of Congress 2010, 4).

A nationally coordinated approach to problems of infrastructure building is the only feasible way to surmount the challenges involved in preserving our audio heritage, especially in an era of severe budgetary constraints. Sharing of facilities and knowledge; coordination of efforts to make the best use of limited resources; agreement on standards and best practices; and cooperation at the institutional, regional, national, and international levels, and between public and private entities—all will be necessary to achieve the national-level infrastructure for preservation envisioned in this National Recording Preservation Plan.

The new national preservation infrastructure should be developed in a coordinated manner with three principal goals:

1. Expansion of the physical and digital infrastructure to properly store and preserve at-risk audio material
2. Development of educational initiatives, including degree programs to train specialists for positions integral to the digitization and preservation of recorded sound, along with the establishment of a centralized Audio Preservation Resource Directory website of professional knowledge to support the educational mission and keep professionals informed of latest developments
3. Establishment of a coordinated national research agenda to support the development of new technologies to meet some of the most challenging problems in the field

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[1] The figure of 46 million was derived in a survey prepared by Heritage Preservation, Inc. (2005, 40) in partnership with the U.S. Institute of Museum and Library Services.

The three subsections that follow offer eight recommendations formulated to address these interwoven areas of development.

Physical and Digital Infrastructure

Audiovisual materials are the fastest growing segment of our nation's archives and special collections. Experts in the field rank the lack of appropriate archival storage and conservation facilities for these materials as their most challenging management issue, followed closely by the need to digitize audiovisual media before physical deterioration and format obsolescence make digitization difficult and costly, if not impossible (Dooley and Luce 2010).

To extend the life span of physical carriers of recorded sound,[2] develop sufficient capacity for reformatting deteriorating media, and securely store digital files, several steps must be taken.

Recommendation 1.1: Recorded Sound Media Storage Facilities

> ***Construct environmentally controlled storage facilities that provide optimal conditions for the long-term preservation of recorded sound media.***

Studies have shown that proper storage, including a controlled environment with low temperature and humidity levels, is the single most important factor in slowing the physical degradation of audiovisual media. When stored at room temperatures, significant damage is likely; magnetic media formats, which are especially sensitive to fluctuations in temperature and humidity, are particularly vulnerable. Despite this fact, most of the nation's publicly and privately held audio collections currently are stored under less than archival conditions that contribute to their deterioration.

Some commercial and public facilities, such as the Library of Congress Packard Campus for Audio Visual Conservation, have been designed to store recorded sound and moving image collections under optimal conditions. For most institutions responsible for audio collections, however, such facilities are too expensive to build, too remote to access, or too limited in capacity to meet the needs of all stakeholders nationwide. Although many institutions have built offsite environmentally controlled storage facilities for books and paper-based collections, few have allotted space to audio holdings, which are inherently less stable than paper media.

Given the large volume of endangered audio recordings that require preservation, it is essential that at-risk collections receive

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[2] Audiovisual engineers use the term *carrier* to refer to the physical media on which sound has been recorded. Examples of analog carriers of recorded sound include wax cylinders; magnetized steel wire; flat discs with bases made of rubber, acetate, lacquer (at times with aluminum, glass, or cardboard backing), shellac, and vinyl, and metal parts in masters; and magnetic audio tape, with bases composed of paper, cellulose acetate, polyester, and polyvinyl. See Council on Library and Information Resources and Library of Congress 2006, 3–6.

priority for storage under conditions that can maximize their life span and provide additional time for preservation reformatting. Library and archives professional associations should advocate on behalf of their members for increased public and private funding to construct new storage facilities or convert existing facilities so as to house audiovisual media under environmental conditions that will prolong their survival until they can be reformatted.

Regional or other collaborations between libraries and archives should be encouraged to create environmentally controlled storage facilities for audiovisual media that follow best practices. Facilities that serve multiple institutions within a geographic area, including smaller organizations, could enable cost efficiencies while providing improved storage conditions for audio and other media. Research libraries that have formed partnerships to coordinate digital and print storage strategies should consider developing collaborative facilities for the archival storage of audio and moving image works. Such facilities also might be combined with collaborative preservation reformatting centers.

Recommendation 1.2:
Expansion of the National Capacity for Audio Preservation

> ***Develop strategies to increase local, regional, and national resources for sound recording preservation reformatting to meet projected needs.***

Expansion of the national capacity for audio preservation reformatting is critical. Studies have concluded that many analog audio recordings must be digitized within the next 15 to 20 years—before sound carrier degradation and the challenges of acquiring and maintaining playback equipment make the success of these efforts too expensive or unattainable.

Libraries, archives, and cultural heritage organizations generally do not have the facilities, equipment, or expertise to reformat and preserve audio holdings. In fact, only a few institutions and commercial specialists outside of the Library of Congress Packard Campus are fully capable of performing analog-to-digital transfers of the many audio formats.

The following steps are recommended to address the situation:

- Develop or expand in-house digitization and preservation facilities to include audio preservation reformatting capabilities, and staff these facilities with highly skilled audio preservation specialists.

  Institutions with significant audio holdings should investigate the benefits, in terms of cost efficiencies and workflows, that can be realized by creating or expanding in-house facilities or by joining regional consortia. Initial efforts might be focused on particular formats, such as audiocassettes, that are held in abundance at the institution.

- Develop collaborations for outsourcing preservation services.
  Institutions that have significant audio collections but are unable to establish in-house audio preservation centers should develop programs, individually or collaboratively, to contract with private companies that provide professional audio preservation reformatting services.[3] Consortial approaches can enable a wide range of cultural heritage institutions to outsource preservation services, regardless of the size of the institution or the audio collection. Many advantages may be realized by sharing expertise, planning, guidelines, and infrastructure, including metadata templates, workflows, and quality control procedures.

- Investigate the possibility of increasing the audio preservation capacity of the Library of Congress Packard Campus for Audio Visual Conservation so that other nonprofit institutions can make use of the Library's facilities to preserve their audio collections.
  Current Packard Campus preservation facilities could be expanded and staffed by either Library or non-Library personnel subject to the Library's oversight. Alternatively, outside funding could be used to establish a second shift at the Packard Campus to undertake preservation work for other institutions. These preservation programs could be established in collaboration with the National Recording Preservation Foundation (Recommendation 4.5) to enable the outside institutions involved to receive contributions from the Foundation.

Recommendation 1.3: Digital Storage

Devise strategies to ensure that digital repositories are accessible to libraries and archives of all sizes for the long-term preservation of audio content.

The long-term preservation of and access to digital audio content relies upon the implementation of digital repository systems that typically provide data management services in addition to bit level storage.[4] Archives that employ digital repository systems, as well as any system providers with whom they contract, must be financially stable and follow best practices in managing data over time.

Libraries and archives responsible for preserving digital audio

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[3] Several successful programs can serve as models for establishing collaborative outsourced services for analog-to-digital conversion. See, for example, "Sound Model: Collaborative Infrastructure for Digital Audio," which describes a project for digitizing materials from a consortia of cultural heritage institutions in the Western states (available at http://imlsdcc.grainger.illinois.edu/Collection.aspx?c=2662).

[4] The term *repository* is used to name both the organization (typically an archive) that takes responsibility for content and the information technology systems that support the preservation of content in digital form. A number of academic and governmental archival institutions are developing appropriate organizational practices and policies, and determining the best architectures for technical systems. Library and archival associations are supporting these efforts by describing repositories at a high level, defining preservation metadata, and outlining methods for auditing performance.

content would benefit from participating in national and international activities to develop policies, practices, and systems for the preservation of digital content. Broader digital data preservation initiatives likewise would benefit from associations with recorded sound archives and digital-audio specialists that contribute expertise to support the development of repository system tools to ingest and manage recorded sound content. The preservation of time-based media such as audio carries with it special requirements for formatting, playback, and management. The audio preservation community must encourage the development of practices and tools that specifically support the ingestion and management of digital audio content (see Recommendations 2.4 and 2.6). Also needed are models for service-level agreements between archives and third-party repository system providers, tailored to the particular requirements of digital audio collections.

The following steps are necessary to achieve these goals:

- Develop strategies for the creation of local, regional, and national digital repository systems for the storage and long-term management of audio content, including an examination of audio-specific aspects of storage media selection and refreshment, digital format migration, and system emulation.

  Long-term preservation depends on the migration of content to new data storage media or formats as needed and, in some cases, on the emulation of obsolete playback systems. The tools, practices, and workflows for the ingestion of data representing audio content into a digital repository differ from those typically used for the ingestion of other types of data. Currently, many organizations ingest digital data from the reformatting of paper documents, still photographs and other pictorial items, and born-digital text, but few ingest audiovisual content into digital repositories.

- Establish consortial digital repositories and agreements between institutions, and develop models for new ventures to follow.

  Economies of scale can be obtained by collaborations that reduce start-up expenditures and long-term operating costs. Great societal value will be provided by repositories geared toward small and medium-sized archives and cultural heritage organizations that lack the infrastructure both to manage the preservation of digital audio files and to provide access. Consortial models developed for digital text and image repositories can provide guidelines for new ventures, especially with regard to auspices, governance, funding models, and other related matters.[5]

[5] See, for example, MetaArchive (http://www.metaarchive.org/). In addition, the Audiovisual Archive Network (http://www.archivenetwork.org/) is developing a pilot project for a scalable prototype library and digital repository service. The HathiTrust referred to its board of governors a proposal to broaden its mission statement from focusing exclusively on building a "digital archive of library materials converted from print" to include "broad-ranging intellectual assets (including, but not limited to audio and video files, art slides, research data, museum specimens, born digital files, etc.)." See http://www.hathitrust.org/constitutional_convention2011_ballot_proposals#proposal5.

- Develop methods, carry out tests, and publish recommendations for the interchange of digital audio content between repository organizations and systems.

  Enabling interchanges entails a combination of digital content packaging, transfer protocols, and effective communication between sending and receiving organizations. Content interchange is important for two reasons: First, a given content item may not remain in the perpetual care of an institution; and second, providers of repository systems may not be in business forever. A preservation life cycle model must include the transfer of items from one archive or system provider to another and their subsequent management and access provision by a new repository.

Educational and Professional Training

Recorded sound collections and archives require personnel highly skilled in all facets of audio creation, management, and preservation. Audio-specific archival preservation practices do not receive sufficient attention—if they receive any attention at all—in most library and information science degree programs. Professional training programs for audio engineers rarely touch on preservation transfer work, a subfield of audio engineering with its own distinct discourse, set of practices, and methods. Yet a solid grounding in audio preservation can be acquired only through a formal educational curriculum with an emphasis on core knowledge and competencies that reflect the interdisciplinary nature of the field. Educational programs should include training in science, technology, engineering, and math, as well as critical listening content skills.

Practices for audio preservation and audio archive management have not been systematically documented, collated, and disseminated. Much of the theoretical and practical knowledge pertaining to sound archives and audio preservation is held primarily by older engineers who have experience with historical audio formats and legacy playback equipment, and it is rapidly disappearing as they retire, leaving their positions to be filled by a new generation focused on the creation and distribution of digital media. Those in other disciplines in audio archiving, such as curatorship, archive management, and preservation practices, often transmit information through informal channels. Such documentation that does exist is not always widely available, and misinformation abounds. Furthermore, the transition to born-digital audio creates even more layers of complexity. The establishment of a collaborative Audio Preservation Resource Directory of professional knowledge not only would improve communications within the field, but also would provide professionals with reliable information about recorded sound preservation practices.

Recommendation 1.4: University Courses and Degree Programs

Establish university-based degree programs in audio archiving and preservation.

Curricula and course materials designed to teach core knowledge and skills in audio archiving and preservation must be developed in three primary areas:

1. Administration and management of archives and collections
2. Physical conservation and reformatting of historical audio recording formats
3. Management of digital audio assets and storage systems[6]

Curricula should be developed at both the undergraduate and graduate levels, with the understanding that while only a few institutions will offer specific degrees in the field, many institutions may offer applicable courses as part of related programs.

Undergraduate courses and degree programs should focus on the technical aspects of reformatting historical audio collections, digital asset management, and skills related to information technology (IT), such as database development, server administration, and systems integration. Students also should become familiar with recorded sound history and should develop basic musical and critical listening skills. Graduate courses and degrees should be offered in archive administration and collection management, conservation, digital asset management, IT-related skills, advanced techniques for the reformatting of historical audio collections, materials science, and information retrieval technologies for audio content. Emerging cataloging and metadata standards and best practices specific to managing and providing access to sound recording collections should be included in the programs. To prepare archivists responsible for setting preservation priorities to take into account the cultural and historical significance of materials, students should become aware of ways that scholars from a variety of fields (e.g., history, music, media studies, cultural studies) use audiovisual materials. Periodic assessment surveys of jobs, recruitment patterns, and skill sets needed in the field of sound recording preservation should be conducted, and the curricula refined accordingly.

The Library of Congress and the National Recording Preservation Board can support these goals by collaborating with national and international institutions of higher education, as well as the education committees of the Audio Engineering Society (AES) and the Association for Recorded Sound Collections (ARSC), to establish and maintain channels for sharing expertise; identify gaps in curriculum materials and encourage development in needed areas; and maintain an up-to-date bibliography of literature and a current list of relevant educational programs and curriculum materials via the Audio

[6] For a discussion of core knowledge and skills, see CLIR and Library of Congress 2010, Appendix B.

Preservation Resource Directory website (Recommendation 1.6).

To accomplish these goals, the following steps are recommended:

- Identify institutions best equipped and willing to teach sound recording management, archiving, and preservation, and encourage them to develop programs.

  The National Recording Preservation Board should coordinate an effort to identify institutions of higher learning that can best meet the objectives and requirements specified. Discussions should be initiated with appropriate university representatives to encourage a needs assessment and feasibility study. The Board should provide whatever support is possible and suitable, including encouraging funding agencies to assist with program start-up costs.

  A laboratory-based curriculum is essential. These institutions must be equipped with appropriate studios and facilities to preserve analog and digital recordings. A successful program would combine faculty with advanced degrees and instructors with professional experience. To provide practical hands-on experience, educational programs must develop collaborative relationships with local, state, and national recorded sound libraries and archives to establish internships and facilitate exchanges of ideas relating to theory and practice.

- Encourage funding and support of educational programs.

  Universities that undertake education and research in recorded sound must agree to provide funding themselves and to seek additional support from external sources. Without a firm commitment of internal funding, academic institutions cannot fulfill their educational objectives and will not garner the support of public and private funding entities.

  Federal, state, and local grant-making organizations, along with foundations and private donors, should be encouraged to expand their mandates and support the educational and research needs of institutions in the field. The National Recording Preservation Foundation (Recommendation 4.5) should publicize the preservation activities of educational institutions and attempt to match projects and initiatives with appropriate funding agencies. The Foundation also should make efforts to inform prospective funders of the importance of professional audio preservation training programs.

- Encourage the creation of internships and fellowships in audio archiving and preservation.

  It is critical that students undertake medium- to long-term institutional internships either as part of their graduate education or as post-graduate experience. An internship is a longstanding integral component in all academic programs in North America designed to educate and train art, film, library, and archive conservators. Internships expose new professionals to a range of

hands-on opportunities for preserving and reformatting source originals under the supervision and mentoring of seasoned preservation professionals. In their future work, these students may be the only preservation professionals on staff, so they need intensive exposure to a wide range of recorded sound preservation issues, as well as opportunities to practice decision-making skills within the broader mission of a cultural institution.

The Library of Congress Packard Campus should expand its activities in providing internships and fellowships relating to the preservation and management of recorded sound collections. The National Recording Preservation Board should work with other organizations to identify additional recorded sound archives and studios that are actively involved in audio preservation or management and encourage them to offer internships. These internship and fellowship opportunities should be posted on the Audio Preservation Resource Directory website (Recommendation 1.6).

Recommendation 1.5: Continuing Education in Audio Preservation

Establish continuing education programs for practicing audio engineers, archivists, curators, and librarians.

Continuing education programs must be established to ensure that practicing audio engineers, archivists, curators, and librarians acquire new knowledge and skills in audio management, archiving, and preservation. To achieve the broadest possible outreach, these programs should take a variety of forms, including traveling and web-based workshops, university-based continuing education programs, and distance education offerings. Such nationally and internationally recognized leaders in the field as ARSC, AES, the Society of American Archivists (SAA), the American Library Association (ALA), and the Music Library Association (MLA) are encouraged to create a special emphasis on workshops in this area as part as their regional and national conferences. In addition, community college and technical training schools should offer workshops and courses to introduce audio preservation concepts to students preparing for technical careers.

The Library of Congress and the National Recording Preservation Board will contribute to continuing education endeavors by listing workshops and other training opportunities on the Audio Preservation Resource Directory website, assisting with the development of workshops, and identifying funding opportunities through the Board. Ideally, all workshops should be offered at the lowest possible cost to attract the largest possible audience.

Workshops should stress the importance of standards-based and best practice approaches to managing and reformatting analog and born-digital audio collections. They must offer theoretical and technical knowledge and training for engineers, archivists, and librarians on a range of related topics, such as audio collection management;

policy and planning for audio archives; rights management; assessment of collection preservation needs; format identification; recorded sound history; digital curation; cataloging and metadata standards and best practices; techniques for playback and transferring legacy formats; folk, popular, and classical music history; and the application of musical training in cataloging and reformatting musical sound recordings.

Recommendation 1.6: Audio Preservation Resource Directory

Create a collaborative online resource to collect, vet, and disseminate knowledge and best practices in the field of recorded sound preservation.

A comprehensive website should be established to collect, vet, and disseminate knowledge about recorded sound preservation. The website, or web portal, should be a central directory that includes resources for decision makers and practitioners within the audio preservation and archiving community. Once established, the directory will serve the needs of educators, researchers, and students by providing a solid foundation for organized professional education and training, research, and practice. Not only will such a website serve as a critical educational resource for the public and for those institutions and communities of practice that are underserved and are in need of up-to-date information, but also it will help raise awareness of the fragility of our national audio heritage.

The directory will facilitate open access to the collected knowledge of the audio preservation field, serving the audio preservation community and the public in the following ways:

- As a comprehensive resource for audio archive professionals, academics, students, and the public
- As a resource for creating academic courses and degree programs, and for developing lesson plans at the K–12 level to educate young people in sound recording history, preservation, and access issues
- As a source of critical information for decision makers who need to learn about issues of audio management and preservation in order to make appropriate policy or funding choices
- As a base from which to build and improve standards and best practices
- As a site for informational exchanges between local, national, and international archival and academic communities
- As a resource for providing information to the general public about the importance of preserving our recorded sound heritage
- As a resource for providing students interested in pursuing careers in audio archiving and preservation with information about the field
- As a resource for information about organized research centers, academic programs, hosted lectures, symposia, residencies, and “travel to collections” research grants

- As a resource that documents the histories of people, techniques, and institutions that have played important roles in the field of recorded sound

Although one person or organization cannot accomplish the central tasks of gathering, cataloging, and making accessible the collective knowledge of the field, there should be a central access portal for collecting and distributing the information. Effective management and long-term sustainability of such a comprehensive resource are much more likely if a single organization—ideally, a national flagship organization such as the Library of Congress Packard Campus and the National Recording Preservation Board—oversees its operations.

The Audio Preservation Resource Directory

The Audio Preservation Resource Directory website will function as an integral part of the national sound recording preservation program. The following components are described more fully in other sections of this plan:

- An education page (Recommendations 1.4 and 1.5)
- A recording history page (Recommendation 1.8)
- A collections management page (Recommendations 2.1, 2.2, 2.3, 3.1, 3.2, and 4.3)
- A public access page (Recommendation 3.9 and 3.11)
- A fundraising page (Recommendation 4.5)

A National Technology Research Agenda

A national research agenda for audio preservation should focus on developing, testing, and enhancing science-based approaches to all areas that affect audio preservation.[7] These areas include materials science and media characteristics, optimum signal extraction practices, and automated and multistreamed approaches to the preservation of recorded sound media. In addition, information on legacy recording equipment and practices should be compiled, preserved, and disseminated. Government, industry, and academia must collaborate at the national and international levels to address research concerns and develop effective solutions.

[7] The National Recording Preservation Act of 2000 specifies that in order to implement a "comprehensive national sound recording preservation program," the Librarian of Congress shall "undertake studies and investigations of sound recording preservation activities as needed, including the efficacy of new technologies, and recommend solutions to improve these practices." See 2 USC § 1711(a) and (b)(4).

Recommendation 1.7: New Technologies for Audio Preservation

> ***Encourage scientific and technical research leading to the development of new technologies to recover, reformat, and preserve audio recording media.***

Some problems presented by the large amount and fragile condition of audio media requiring preservation can be resolved only through research initiatives that lead to new technologies. It is essential to develop technologies that can be used to efficiently reformat the vast quantities of recorded sound residing in major archival collections before their carriers degrade. Scientific research must be encouraged to determine the life expectancy of all formats as well as to find effective ways to slow down the deterioration process and recover sound from already degraded audio carriers. Solutions that are independent of the original recording practices, media, or equipment (e.g., non-contact playback) can mitigate impediments to preservation resulting from media deterioration and equipment obsolescence.

Priorities include the following:

- Research to quantify the life expectancy of all analog formats, resulting in the development of diagnostic tools for identifying endangered media and integration of those tools into workflows.

  The Library of Congress Preservation Research and Testing Division (PRTD) already has initiated research to collect scientific data on the physical characteristics of modern media, including physical and chemical ageing characterization and assessment of deterioration and degradation components, with the aim to develop diagnostic tools to predict media deterioration. The Library of Congress will continue to lead these efforts and will seek to collaborate with other institutions to achieve these research goals. The focus of PRTD research into non-invasive technologies to identify and characterize media is part of this initiative.

- Research, including chemical and physical analyses on deteriorating media carriers, that leads to improvements in care and handling, as well as ways to slow degradation and recover content.

  Because numerous legacy formats are near the end of their life expectancies, research and development must be made a priority. The National Recording Preservation Board's recorded sound preservation study noted that many archivists and engineers have made the study of magnetic tape properties a priority (CLIR and Library of Congress 2010, 96). Quantification of chemical and physical properties should be expanded to embrace all media carriers.

  Scientifically researched and developed methods to solve the problems encountered with deteriorating media carriers are urgently needed. For example, scientifically developed and well-documented methods are necessary to recover audio from tapes with "sticky shed syndrome" (binder hydrolysis) and

delaminating lacquer discs. After completing studies on this issue, PRTD has concluded that reformatting should be given high priority, and is working with industry partners to understand the underlying degradation phenomena to potentially retard further development of this deterioration.

Provided funding is available, PRTD will work to develop a workshop that includes academic, industrial, and government partners who have an interest in establishing testing criteria to ensure the quality and stability of the media on which their data are held. In addition, PRTD has undertaken the organization of a collaborative network of partners and researchers in academia, cultural heritage, and industry for assessment of current research, areas requiring further research, and the best use of current resources to coordinate research studies. Development of standardized testing procedures will allow comparison of risk for a wide range of existing media formats. Future testing of new and existing storage materials will inform migration requirements and assist associated workflows required to preserve at-risk materials.

- Research and development of new technologies for recovering sound from fragile media, including non-contact playback systems, and improving efficiencies in audio preservation.

  Further research should be undertaken to develop efficiencies in the areas of audio element preparation, transfer methods, and solutions for digital audio migration or emulation. Studies should be encouraged to determine effective ways to increase the level of automation used in quality review and assurance. An effort must be made to develop cost-effective, rapid, and, where beneficial, non-contact methods for reformatting.

  The Library of Congress, for example, has been collaborating with physicists at Lawrence Berkeley National Laboratory to develop imaging technology for non-contact reformatting of audio material recorded on discs and cylinders. Since the imaging systems do not physically touch the playback surface, sound that had previously been considered irretrievable can be recovered from fragile and broken media.

- Collaboration with AES to develop improved tools and metrics to permit the evaluation of the performance of digitizing systems (e.g., easy-to-use tone or signal generators, and software applications that permit lay people to administer pass/fail tests on equipment).

- Initiation of collaborative research at the national and international levels.

  There must be a free flow of information to expedite solutions and avoid overlapping of efforts. To this end, steps must be taken to reach out to national and international recorded sound communities and identify opportunities for collaborations on similar projects. Such partnerships may lead to a consensus on methodologies

and best practices, further enhancing the efficiencies needed to execute a preservation agenda of this scope. Groups such as the International Association of Sound and Audiovisual Archives (IASA), the Association of Moving Image Archivists (AMIA), ARSC, and AES can help facilitate collaborations, publicize findings, and articulate research needs to the scientific community.

Recommendation 1.8: Documentation of Legacy Technologies

Research, collect, document, and preserve information on legacy recording practices and technologies.

There must be a systematic and sustained effort to compile and collect information related to legacy recording technology and practices: where it is, how it works, and the characteristics, or "audio signatures," of the recordings themselves. Additional efforts should be made to thoroughly document the expertise of legacy recording practitioners. This work can serve as the cornerstone for the development of standardized methods and best practices for audio preservation reformatting, and will be shared through the Audio Preservation Resource Directory (Recommendation 1.6) to serve the needs of training and education.

This process includes the following steps:

- Create a national directory of available obsolete equipment as a resource for audio preservation and restoration engineers that will indicate the location of hardware required for the playback and transfer of legacy recording formats.

  The directory should inventory obsolete or difficult-to-locate equipment in the offices or studios of various record companies, independent studios, and independent producers. It should list tape machines, recording consoles, and outboard gear (e.g., equalizers, reverb units), among others, because such elements may be sought by those attempting to restore or reissue historical recordings. For each audio facility, the directory should list contact information and the financial and logistical terms on which access to the gear can be obtained.

  Compilation could be a joint project of the applicable committees of ARSC, AMIA, the National Academy of Recording Arts and Sciences (NARAS), and AES. The directory should be made available online as part of the Audio Preservation Resource Directory and updated regularly. The directory could be expanded in the future to include an appendix with a year-by-year or decade-by-decade list of major formats used at different stages of the recording process, including recording, mixing, and mastering. Information for the appendix might be gathered through partnerships with universities that offer advanced degrees in audio engineering, as well as through the Producers & Engineers Wing of NARAS and AES.

- Initiate a program to videotape interviews and demonstrations by senior audio engineers.

  To document recording practices used to capture sound from legacy media, lecture demonstrations by expert practitioners should be videotaped. They should cover older formats, playback techniques, and playback systems. The videos should be developed under the auspices of the Board and made available on the Audio Preservation Resource Directory as free podcasts or webcasts. Possible partners with the Board include ARSC and AES, as these organizations already have taken preliminary steps to address this issue by identifying and interviewing experts.

- Create a digital repository of manuals and schematics for legacy equipment.

  A coordinated effort is needed to systematically acquire service manuals and schematics for all legacy playback equipment. It is necessary to identify gaps in the collection, solicit donations of manuals, and request the support of manufacturers and interested archives and libraries. The Packard Campus already has begun this process and should make information about this collection digitally available via the Audio Preservation Resource Directory website.

2. Blueprint for Implementing Preservation Strategies

The preservation community should adopt management strategies and practical operational procedures that facilitate the activities of recorded sound collection managers and technicians in meeting the challenges of digital preservation. Many of the needs can be met through the Audio Preservation Resource Directory website (Recommendation 1.6) and through efforts led by organizations such as AES and ARSC. Without timely actions, archives will be unable to preserve and make accessible analog and born-digital audio content for current and future generations. Failure to meet this challenge will place our nation's audio cultural heritage at further risk.

Born-digital audio is increasingly woven into the fabric of day-to-day information creation and exchange. Studio-recorded music, radio broadcasts, sound for film and video, field recordings, personal recordings, podcasts, interviews, recorded meetings and conference proceedings, as well as audio blogs and audio tweets, are created en masse today in born-digital formats.

Concurrent with changes in the mode of audio production, digital audio files have become the accepted preservation format for legacy analog recordings. *The State of Recorded Sound Preservation in the United States* notes the "opportunities and promises" of digital media for preservationists. For example, "generation loss" (i.e., the loss of quality inherent in copying material from one audiotape to another as old tapes deteriorate) is nonexistent in digital transfers. The report emphasizes, however, the significant technical, organizational, and

funding challenges that institutions will confront as they make the transition to digital file preservation approaches: "new procedures and tools, a new and complicated lexicon, formidable and time-consuming documentation requirements, daunting storage and IT responsibilities, and an incomplete set of standards and best practices—and all of this only after significant up-front investment of money to create technical infrastructures necessary for digital preservation" (CLIR and Library of Congress 2010, 66).

The nature of digital files and digital file storage necessitates ongoing, active management at a number of levels. Software and hardware are constantly evolving, hastening the obsolescence of digital media, software, and file formats. Any misstep in the creation and management of audio files presents risks to their long-term sustainability equal to the risks of environmental or physical degradation for physical media. Files that are described and arranged poorly can become impossible to retrieve. The application of methodologies appropriate to born-digital recording requires significant shifts in practice by content creators and producers as well as archivists, who must adopt practices that support digital preservation as an active, managed process throughout the life cycle of the audio file.

Audio Preservation Management

To ensure that recorded sound materials are successfully preserved in the digital age, collection managers must be equipped with strategies, models, and guidelines to aid them in making informed policy decisions. They must have tools to help them adhere to best practices in managing their collections; survey and appraise their collections to prioritize for digitization their most significant and endangered recordings; and form mutually beneficial public-private partnerships to engage in costly digital preservation reformatting and access projects. Using the Audio Preservation Resource Directory website, as suggested in the following three recommendations, can facilitate the achievement of these goals.

Recommendation 2.1:
Guide to Audio Preservation

> ***Compile a basic audio preservation handbook to guide non-specialists in the management of audio collections.***

If collection managers are to make strategic decisions and implement effective preservation strategies, they must have a set of core standards and best practices to guide them. Although organizations such as IASA have developed highly technical sets of guidelines in specific areas,[8] *The State of Recorded Sound Preservation in the United States* concluded that "[t]he capacity to adhere to current best practices for audio preservation is beyond the reach of most institutions" (CLIR and Library of Congress 2010, 5). There is a significant need for a

[8] See, for example, IASA 2005 and IASA 2009.

basic conservation handbook targeted primarily to smaller organizations and individuals who lack expertise specific to audio conservation and preservation.

The handbook will be a component of the Audio Preservation Resource Directory website and will address the following topics:

- Facilities: specifications for climate (appropriate temperature and relative humidity range for each format), construction materials, lighting, ventilation, fire suppression systems, and security
- Media: overview of formats, including composition and types of degradation common to sound carriers
- Housing and storage: appropriate shelving, containers, and other enclosures as recommended for each media format
- Handling: guidelines for cleaning, repair, and playback
- Digital storage: overview of digital file formats and best practices for storing digital files
- Cataloging: overview of arrangement, description, and metadata conventions
- Reformatting: guidelines for planning a preservation project, including how to outsource reformatting
- Rights management: guidelines and model agreements (covering archival deposits, interviews, oral history licensing, etc.), with an emphasis on intellectual property rights, and ethical and legal issues regarding use and access
- Appraisals: general guidelines for surveying and assessing the physical condition of audio holdings and establishing priorities for preservation

Recommendation 2.2: Appraisal of Audio Collections for Preservation

Devise means to assist collection managers in conducting comprehensive appraisals of audio holdings with the goal of establishing priorities for preservation.

Institutions must conduct comprehensive item-level appraisals of their audio holdings to make strategic and timely preservation reformatting decisions.[9] By identifying recordings that are at greatest risk because of format obsolescence and physical condition, in addition to those that have the most historical importance for their users, institutions can make informed policy decisions and determine priorities for preservation. Data from appraisals can be used to justify preservation projects and support requests for funding.

Surveys and appraisals should be structured to accomplish five primary goals:

[9] The term *appraisal* in an archival context applies to the life cycle of audio recordings. Appraisals are undertaken to aid in the following areas: selecting items for acquisition and retention; establishing preservation priorities; determining the intellectual control of materials by gathering information on the physical description, content, provenance, etc.; providing access to users that complies with privacy rights, intellectual property rights, and other considerations; and protecting the collection by minimizing physical damage to the original materials.

1. Quantify in specific detail types of audio carrier formats and the estimated number of hours of recorded content in collections.
2. Provide an in-depth analysis of the physical condition of each item.
3. Provide an assessment of the historical and research value of the content, including uniqueness, that takes into account intellectual property rights and other issues that may limit access.
4. Rank collections from low to high priority for preservation.
5. Guide the allocation of resources toward reformatting the most significant and imperiled recordings.

Few audio collections have been surveyed, analyzed, and appraised in a manner that yields both qualitative and quantitative data. Such a project presents many challenges. Audio collections typically include a wide variety of materials, ranging from commercially released recordings on relatively stable formats (e.g., mass-produced discs) to unpublished instantaneous recordings on fragile or obsolete formats and born-digital files that are likely to have unique content. Addressing preservation and appraisal issues across this broad spectrum requires technical expertise, including knowledge of specific formats and their physical or digital attributes, and the ability to assess the intellectual and historical value of content. In many institutions, significant collections are located outside libraries and archives, which means that they must be surveyed in offices, research centers, museums, academic departments, broadcast facilities, and other units.[10] For large or dispersed collections, a comprehensive survey and appraisal requires considerable commitments of time and funds.

To assist managers in conducting audio collection surveys, the following steps are recommended:

- Coordinate a collaborative nationwide effort to make available online (via the Audio Preservation Resource Directory) assessments of a range of audio collection appraisal tools that research institutions have developed, many of which are freely available online.[11]

  Each of the presently available tools has distinct attributes, which should be described, and the suitability of each tool for use with specific types of collections should be analyzed. Using

[10] Indiana University recently completed the first university-wide media preservation survey, which identified 560,000 audio, video, and film objects on the Bloomington campus alone. As part of the survey, Indiana University queried other Big Ten universities about media holdings and was able to obtain an estimate of 1.5 million audio objects across all 11 universities. At present, only one of these universities is conducting a similar campus-wide survey. See http://www.indiana.edu/~medpres/documents/iub_media_preservation_survey_FINALwww.pdf.

[11] See, for example: Indiana University and Harvard University's Field Audio Collection Evaluation Tool (FACET) at http://www.dlib.indiana.edu/projects/sounddirections/facet/index.shtml; Columbia University's Audio Video Database (AVDb) at http://www.columbia.edu/cu/lweb/services/preservation/audiosurvey.html; University of Illinois at Urbana-Champaign's Audio-Visual Self-Assessment Program (AVSAP) at http://www.library.illinois.edu/avsap/; and New York University's Visual & Playback Inspection Ratings System (ViPIRS) at http://library.nyu.edu/preservation/movingimage/vipirshome.html.

or modifying existing tools will result in considerable savings for collection managers. ARSC, whose members developed several of these tools independently of one another, might be the most appropriate organization to coordinate this work.

- Encourage institutions that have completed media preservation surveys to share their results via the Audio Preservation Resource Directory website.

  Completed reports can assist other institutions in developing models to assess their collections and producing preliminary forecasts of the amount of at-risk media likely to require preservation and the requisite staffing, funding, and infrastructure that will be needed. The reports will also benefit vendors and suppliers integral to the preservation community by making it possible to quantify the scope of preservation issues and the needs for conservation and preservation tools and supplies.

- Develop and maintain a list of experts who can assist collection managers with collection evaluation and appraisal surveys.

  The list, to be made available on the Audio Preservation Resource Directory website, should include experts from both the public and the private sector, and it should be updated annually. Qualifications and applicable experience should be indicated, including experience using one or more of the available appraisal tools.

- Encourage funding agencies to increase support for comprehensive surveys.

  Presently, two federal agencies provide funding for condition surveys of audio media, but not at levels sufficient for the type of comprehensive, institution-wide surveys and appraisals required to set priorities for audio preservation reformatting.[12]

Recommendation 2.3: Public-Private Partnerships

Disseminate guidelines—via the Audio Preservation Resource Directory website—for establishing collaborative preservation partnerships between public institutions, private companies, private collectors, and other stakeholders to preserve endangered recordings.

Private collectors and a variety of other stakeholders, including artists, producers, sponsors, and arts organizations, hold a significant portion of the nation's recorded sound heritage, encompassing commercial recordings of small and regional companies; recordings of genres of limited general appeal, such as those produced within and

[12] See Institute of Museum and Library Services (http://www.imls.gov/) and the National Endowment for the Humanities America's Historical and Cultural Organizations grants programs (http://www.neh.gov/grants/guidelines/AHCO_ImplementationGuidelines.html).

for ethnic communities; recordings of live performances that have not been released commercially; radio broadcasts; and privately produced recordings of historical or cultural significance, such as interviews and field recordings. Many of these recordings are likely to be unique or exist only in small quantities, making them a high priority for preservation.

The holders of private recorded sound collections rarely are equipped to engage in preservation reformatting and access projects for material that is not commercially viable. Few grant agencies will consider funding the preservation of material in private hands. Partnerships between private individuals or groups and public or nonprofit institutions that have the resources and mission to provide these services, therefore, can be mutually beneficial.

Because record companies are vulnerable to changing markets and corporate resources, they also may find it difficult to manage and preserve valuable historical assets that are no longer commercially viable. In such cases, collaborative efforts with public or nonprofit institutions to preserve the contents of record company vaults, including master recordings and associated documents, likewise can be beneficial.

To encourage such collaborations, a component of the Audio Preservation Resource Directory website (Recommendation 1.6) should be devoted to publicizing public-private preservation partnerships. This resource will benefit public institutions and private collectors by providing examples of successful partnerships, as well as models for successful outcomes.[13] The "partnerships" page should include the following elements:

- Profiles of model projects.

  Selected projects should be publicized, with the goals, objectives, and outcomes of each project outlined, along with contact information for the participants. Links should be provided to websites of funding agencies where cooperative audio preservation projects are listed or profiled.[14]

- Sample partnership agreements representing a range of possible relationships.

  Two of the most common types of partnerships fall under the parameters outlined in the following scenarios. In each, the right of the receiving institution to digitize, retain digitized copies, and provide public access to digitized copies within the limits of the law would be permanent and irrevocable.

  1. The donor gives a collection to a public or nonprofit institution with an agreement that allows the receiving institution to digitize the collection for both preservation and public access purposes. Donors retain any intellectual property rights that

[13] The Recorded Sound Preservation Access Network (described in Recommendation 3.8) exemplifies a plan for a public-private partnership that would reduce redundancy and release funds for the preservation of materials not held at multiple archives.

[14] For an example of a model project, see National Jukebox: Historical Recordings from the Library of Congress at http://www.loc.gov/jukebox/.

they may own and the right to commercially exploit the collection; however, they allow the receiving institution—the archival partner—to provide public access to the collection in any manner that the law allows. Donors have permanent access to digital copies in the archive and the right to commission digitization of additional recordings in the collection at agreed upon costs.

2. The donor and the archival partner agree to the donation of digital surrogates of the physical collection, which the donor continues to own. In this case, the donor agrees that the receiving institution can retain digital copies permanently for the purposes of preservation and public access, and the archive agrees to provide the donor with copies of the digital files upon request.

- Profiles of model joint agreements for related preservation and conservation concerns.

  Participants in hearings conducted by the National Recording Preservation Board suggested that archives might jointly purchase supplies (e.g., record sleeves, boxes, tape reels) in bulk quantities to lower unit costs (CLIR and Library of Congress 2010, 88). Certain types of supplies, such as tape reels, may no longer be commercially available in the near future. Collaborative efforts may become essential if collection managers are to acquire molds and manufacturing components for soon-to-be obsolete supplies and equipment. Organizations such as ARSC and MLA should facilitate the creation of such agreements for individual and institutional members.

New Tools and Guidelines for Preserving Digital Audio Files

Many different types of organizations and individuals produce digital audio, including those who are involved in preservation work and those who create born-digital content. These stakeholders represent a wide range of organizational capacities and staffing, and they employ various production methodologies. Managing these diverse collections requires expertise in analog playback, digitization, collection of metadata, and administration of the IT infrastructure necessary to create, manage, and preserve digital files. Although standards and best practices already are in place to guide much of the work involved in audio preservation, collection managers may not have the expertise and resources to develop workflows appropriate to their operations. In addition, the arrival of new types of digital audio files and the fast pace of IT development have introduced complexities into the preservation effort that will require special attention to ensure effective long-term management. The four recommendations that follow suggest tools, models, and guidelines that should be developed to assist technicians and managers in meeting a variety of challenges associated with digital preservation.

Recommendation 2.4: Preservation Workflows for Audio Materials

Develop tools, practical implementation models, best practices, and high-efficiency workflows for digitizing analog recordings.

No single implementation plan can meet the needs of all organizations responsible for preserving audio materials. Essential core principles of preservation nevertheless should be codified into a set of best practices, accompanied by a variety of models and workflows that can inform and guide a wide range of digital audio creators and groups committed to preservation.

Research and development vetted by organizations such as ARSC, AES, and the Library of Congress is particularly needed in the following areas:

- Implementation models that organizations can use to meet audio preservation standards and best practices for creating preservation-quality digital files.

  A variety of workflows and implementation models must be created to serve the needs of different kinds of organizations and individuals that collect sound recordings. Workflows, in particular, are highly individual and variable—specific to the holdings, experience, technical knowledge, and the resources of an organization. Rather than a rigid set of guidelines, a set of core standards and best practices should be developed, along with a number of models for implementing them. These models can serve as the basis for organization-specific implementations that take a systems view of audio preservation operations. That is, they must address each component and function of the system, which may include selection for preservation, analog playback, analog-to-digital conversion, creation of preservation-quality digital files, collection of metadata, verification of data integrity, and administration of IT systems.

- Best practices for high-efficiency parallel transfer workflows for the simultaneous reformatting of multiple recordings in various formats.

  Parallel transfer workflows are desirable because of the overwhelming number of audio recordings in need of preservation, the ongoing degradation of many audio recordings, and the ever-growing obsolescence of all analog and physical digital audio formats. Although parallel transfer workflows are widely used, best practices in this area have not yet been defined. Further research is necessary to determine, for example, which recordings are most appropriate for this procedure, and how the inherent risks can be reduced. This work will inform the development of implementation models that guide safe, high-quality work. The development and adoption of best practices also will assist organizations seeking funding for preservation projects that employ parallel transfers and other high-efficiency workflows by assuring funding agencies that the methodology is sound.

- Improved tools and metrics for system performance testing.

  The systems used in the reformatting of content from legacy audio media to file-based formats must be subjected to tests that measure performance and adherence to standards and recommended practices.[15] These systems include the analog-to-digital (A/D) converters, the signal path from the converter to the digital audio workstation (DAW), and the file-making and file-storage elements within the workstation. To serve workers in archives large and small (few of whom are engineers), affordable, user-friendly tools are urgently needed to measure the various aspects of performance within these systems and workflows. Examples include tools for measuring the performance of the audio-to-digital converter and tools for monitoring digital data management and file-writing integrity.[16]

  The best tools for the conversion of analog sound recording to digital include A/D converters and DAWs (with supporting software), virtually all of which come from the commercial marketplace. In addition, many archives turn to specialist vendors to reformat their historical materials, and they will require reassurance that the vendor adheres to mutually agreed-upon guidelines and standards, as well as best practices. In both scenarios, archives need to know that the systems in use are capable of meeting standards and recommended guidelines, and that their performance is consistent over time. This means that there is a need for a list of performance elements, the determination of pass/fail points for each element, a method to measure against the pass/fail requirement, and easy-to-use tools to do the measuring. Performance metrics also should include methods of monitoring, testing, and verifying a vendor's services.[17]

Recommendation 2.5: Metadata Standards for Digital Audio Files

Develop recommendations for metadata guidelines and best practices related to digital audio files that incorporate established standards and maximize interoperability.

Metadata, or data that describe data, is "a necessity in any digital storage and preservation environment," according to IASA's authoritative *Guidelines on the Production and Preservation of Digital Audio Objects*.[18] Data about digital files are needed to efficiently document,

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[15] See International Association of Sound and Audiovisual Archives 2009 (IASA-TC 04) and Audio Engineering Society 2009 (AES17-1998 [r2009]).

[16] See Federal Agencies Audio Visual Digitization Working Group 2011.

[17] Analog-to-digital performance guidelines are specified in Federal Agencies Digitization Guidelines Initiative (FADGI) 2012a and 2012b.

[18] See International Association of Sound and Audiovisual Archives 2009 (IASA-TC 04), chapter 3. IASA's definition of metadata is as follows: "Metadata is structured data that provides intelligence in support of more efficient operations on resources, such as preservation, reformatting, analysis, discovery and use. It operates at its best in a networked environment, but is still a necessity in any digital storage and preservation environment. Metadata instructs end-users (people and computerised programmes) about how the data are to be interpreted."

locate, access, and manage files. The record that indicates where a file resides, what it contains, who created it, how to play it back, and much more may be contained in metadata related to a digital audio file. Metadata can be used to search files, sort them, select files for preservation, guide their transfer and distribution, keep track of ownership and rights, document different versions or components of an audio recording, and assist in the reconstruction of multitrack recordings when the software used to create them is not available.[19]

The preservation of digital audio content depends on the metadata that an organization maintains in a database and the metadata that is embedded in individual files and/or digital packages (groups of related files). Without appropriate descriptive, administrative, and technical metadata, files and packages are not interpretable, manageable, or accessible. Technical metadata that allows a file's provenance to be tracked must be added throughout the production process as audio content is created, and is required when recordings are digitally reformatted. There also is a need for a best practice for the management of multitrack recordings in a digital file environment.

Currently there are no standards, guidelines, or models that effectively meet the needs of the wide range of stakeholders that strive to produce preservation-quality digital audio files. No single set of metadata guidelines can apply to all organizations because of differences in data types, workflows, staffing, and capacities, as well as different end product needs of key communities.[20]

The following steps are recommended to improve the collection and management of metadata:

- Develop metadata guidelines to meet the needs of the various communities engaged in the creation and preservation of digital audio.

  Sustainable metadata guidelines and effective workflows must be developed to support standardization and digital file preservation for all classes of stakeholders: archives and libraries, whose mission is to collect and preserve content; large-scale creators of content, such as broadcasters and major record companies; and small-scale creators of content, such as podcasters, independent artists, oral historians, linguists, and journalists/interviewers. A collaborative approach (perhaps involving work groups formed by AES, NARAS, IASA, and ARSC) will be required to assess the specific needs of these various constituencies. In the interest of widespread adoption, types of guidelines should

[19] Contemporary multitrack recordings often rely on the software used in their creation for their assembly into a larger multitrack work. Metadata, such as embedded file names and time stamps, can be used in the reconstruction of a multitrack recording without the original creation software.

[20] The Federal Agencies Digitization Guidelines Initiative (FADGI), convened by the Library of Congress National Digital Information Infrastructure and Preservation Program, has established an Audio Visual Working Group. The stated goal of the group is "to identify, establish, and disseminate information about standards and practices for the digital reformatting of historical and cultural audio-visual materials by federal agencies." The group has commissioned a number of studies and created guidelines for embedding metadata in Broadcast WAVE files. The initiative may be a model for future collaborations. Benefits from work that the initiative has already accomplished need not be restricted to federal programs. See http://www.digitizationguidelines.gov/audio-visual/.

be distinguished as (1) basic "core" metadata for all stakeholders, (2) additional recommended metadata for specific sets of stakeholders, and (3) optional metadata specific to individual organizations.

- Standardize metadata elements to maximize interoperability and efficiency.

  Metadata needs vary. Even so, significant differences in metadata elements inhibit interoperability and the transfer or sharing of digital objects. High degrees of variability can prevent the development of economies of scale in storage and data management. Guidelines should minimize variation in order to maximize interoperability and overall cost-efficiency. Whenever possible, guidelines should incorporate one or more of the established metadata standards, which could be refined as needed to increase their level of adoption.[21]

- Advocate for the implementation of standardized metadata schemas in commercially available and open source software.

  Most digital audio workstations offer some ability to create, read, and edit metadata; however, cross-system compatibility is weak, and subsets of metadata vary depending on the platform. Standards have been proposed, but few software developers and systems manufacturers have adopted them. As a result, many archivists have developed their own proprietary approach to storing metadata for their audio collections. Interested organizations, such as AES, ARSC, and NARAS, should identify advocates (e.g., trade groups) capable of encouraging hardware and software developers to adopt standard metadata schemas that are cross-platform compatible and enduring. Tools that adhere to standards and best practices will better enable content creators to take on the implicit responsibility and role of curator of their born-digital audio content.

Recommendation 2.6: Tools to Support Preservation throughout the Content Life Cycle

> ***Encourage the development of tools that support adherence to standards and best practices in the creation of sound recordings and in the management of their preservation.***

In the digital realm, audio preservation activities depend on numerous software applications. Some of these come into play early in the

[21] A number of standards have already been established and, in some cases, implemented. Three examples from the European Broadcast Union add "chunks" that may be embedded in files in the WAVE format: the bext (Broadcast Extension) chunk, the aXML chunk, and the iXML chunk. Other standardized metadata formats specific to sound recordings include emerging AES specifications X098B for audio objects and X098C for process ("how produced") metadata. Other generic digital content specifications are also relevant: METS, MODS, XMP, etc.

content life cycle, when sound recordings are originally produced or when they are reformatted or transcoded in an archive to create the master files intended for long-term management. Others are employed later in the life cycle when integrated repository systems carry out that long-term management. Throughout the life cycle, there are central or core software packages. At the early, creation phase, these software packages include the audio workstation's operating system and the digital audio application where files are produced. Later in the life cycle, there is a core repository application with web-based services and application programming interfaces (APIs), where long-term data management takes place. There is an advantage—and cost saving to archives, both commercial and noncommercial—if the initial creation of a work is "born-archival"; that is, if it is in a format (including metadata) that can be ingested and managed "as is." (See Recommendation 2.7.)

Beyond these core systems, workflows throughout the content life cycle will benefit from an array of supporting services and applications. For example, when audio files are created, preservation success will be ensured by the use of tools to validate that a given file meets appropriate standards and specifications, to enhance the metadata embedded in or associated with the file, and to establish an initial checksum (hash value) for the file, which then can be used to verify the file's integrity throughout its life. In the data management segment of the life cycle, adjunct software tools can also help custodians continue to verify file integrity, further enhance metadata, and carry out other processes that ensure the success of preservation over time.

Many core software packages are commercial products, although a few open source tools, like Fedora, have found a place in digital preservation systems. There is, however, a need for a richer set of audio preservation software to play synergistic roles in relation to the core systems. Because the market for such tools is limited, commercial packages may not emerge to fill this need.

Open source development, therefore, should be encouraged. As investment is required to develop software, the audio preservation community should support the development of needed open source tools. A collaborative effort is required to identify areas of greatest need and to garner funding and support to develop the tools necessary in those areas.

Examples of software that would serve the audio preservation community well include tools for the following purposes:

- Creation, extraction, and insertion of metadata into audio files and the mutual exchange of that metadata with associated database or collection management systems
- Conversion of proprietary EDL (edit decision list) formats of the most commonly used DAW platforms to a standardized format
- Creation of integrity data when files are created or ingested into a repository so that the data can be used to monitor the condition and integrity of stored files
- Automated systems for file management, creation of derivatives, and dissemination of assets

- Migration of digital assets throughout their life cycle as technology and formats become obsolete

Recommendation 2.7: Best Practices for Creating and Preserving Born-Digital Audio Files

Research, develop, and promote improved and scalable processes to package multipart and metadata-rich digital audio objects, and to develop (and update) practices for the transformation and management of these objects when they are archived for the long term. Define preferred formats (including metadata) in order to maximize the initial creation of born-archival files by those who produce sound recordings, or develop recommendations for preferred file formats, embedded and/or associated metadata, and object packaging.

Some newly created digital sound files present a number of preservation issues because of their formatting. For example, surround-sound or multitrack files may involve compression or structures that will benefit from transformation, decoding, or repackaging for long-term storage when ingested by an archive. Files from music composers may mix waveform data (including samples) with structured-audio elements (e.g., Musical Instrument Digital Interface [MIDI] data) that will demand special management over time. New recordings often include visual elements, ranging from camera-produced video to graphic-based animations, and these also require special management. For long-term management of these types of files, best practices must take into account their specific characteristics and functions.

The term *born-archival* refers to the creation of digital files that can be archived immediately; they are formatted for archiving, and all necessary metadata is created at the time of file creations. The set of best practices for managing born-digital files can be articulated in ways that also provide guidance to content creators.[22]

Born-digital and born-archival practices have multiple stakeholders, including the National Recording Preservation Board. Other stakeholders include archives, both commercial and noncommercial, and the organizations in which they are active, ranging from AES to ARSC. Additional stakeholder groups include the Producers & Engineers Wing of NARAS; the Federal Agencies Digital Guidelines Initiative; and funding agencies, including federal entities (e.g., the Institute of Museum and Library Services and the National Endowment for the Humanities) and interested independent foundations. Commercial interest in this topic extends beyond the archives, as digital sound recordings are the central asset at record labels and other publishers of music and spoken word recordings; for these

[22] The *Digital Dilemma* reports from the Science and Technology Council of the Academy of Motion Picture Arts and Sciences (2007 and 2012) provide analytic and descriptive work on born-archival moving image content. The definition of *born-archival* used here is derived from wording in *The Digital Dilemma 2*.

organizations, the preservation of these assets is essential to the companies' long-term financial success. The development of practice recommendations should entail consultation with several of these stakeholders. One of several vehicles for promulgating recommendations will be through statements of preferred digital formats and metadata to be submitted for copyright eDeposit—that is, copyright deposits of materials published only in electronic format (see also Recommendation 4.3).

3. Promoting Broad Public Access for Educational Purposes

In directing the implementation of a "comprehensive national sound recording preservation program," the National Recording Preservation Act of 2000 stipulated that the program should, as one of its objectives, "increase accessibility of sound recordings for educational purposes."[23] Here, as in several other places in the legislation, Congress recognized an inextricable link between preservation and public access.

The Act called on the National Recording Preservation Board to undertake a study to report on "standards for access to preserved sound recordings by researchers, educators, and other interested parties," among other issues.[24] The resultant preservation report made the link between preservation and public access explicit by titling one chapter "Preservation, Access, and Copyright: A Tangled Web" and acknowledging that "[t]oday, preservation and access have become joined, locked together in the realm of sound recordings"(CLIR and Library of Congress 2010, 108, 7).

The U.S. Copyright Office has similarly linked preservation and access in a recent report, *Federal Copyright Protection for Pre-1972 Sound Recordings*. "Providing some level of access to digitally preserved works is important," the report authors contend, "because without it, preservation is often merely an academic exercise." The report specifies that public investment in the preservation of sound recordings can benefit the public only if they can access those materials. Such access is important for increased "public knowledge about our cultural patrimony, and for the light that these recordings can shine on the times in which they were recorded—basically, for the reasons we study film, literature, music, and any other product of the mind." Invoking language from the Copyright Clause of the U.S. Constitution, Article 1, Section 8, the report notes, "Access also propels the 'progress of science' in that current

[23] National Recording Preservation Act of 2000 (P.L. 106-474), Sec. 111. This Act was amended by the Library of Congress Sound Recording and Film Preservation Programs Reauthorization Act of 2008 (P.L. 110-336).

[24] Ibid., Sec. 124. The Act also linked the two concerns together in creating the National Recording Preservation Foundation with its mandate to raise funds "to promote and ensure the preservation and public accessibility of the nation's sound recording heritage held at the Library of Congress and other public and nonprofit archives throughout the United States." Ibid., Sec. 201.

creators are able to build upon what has come before" (U.S. Copyright Office 2011, 95).[25]

Although preservation and provision of public access are linked, these two core archival tasks frequently diverge. Libraries and archives often make preservation copies of sound recording materials that are not accessible to their patrons. Many access copies of recordings are not of sufficient quality to be used for preservation purposes.

Providing access to relevant sound recording materials is a multifaceted challenge. For patrons of libraries and archives, access begins with discovering what materials exist and where they reside. Attempts at discovery, however, frequently leave researchers frustrated. There is no authoritative national discography documenting recordings produced in the United States. The lack of a centralized access point to the hundreds of special collections that contain recordings has proven to be an impediment to researchers. Moreover, cataloging for recordings often does not have the amount of detailed information that patrons desire (Davenport 2010, 156–164).

Rights-related issues affect many facets of preservation and access to historical recordings. Few, if any, public domain recordings exist in this country because federal copyright law in the United States does not cover sound recordings made prior to February 15, 1972. Instead, pre-1972 recordings are subject to a variety of disparate state antipiracy laws that have no expiration dates and lack language to exempt archival copying for preservation purposes. As a result, a study sponsored by the Copyright Office and the National Digital Information Infrastructure and Preservation Program of the Library of Congress found that "[m]any librarians and archivists are reluctant to copy and disseminate older sound recordings in the face of this patchwork of state laws that lack well-delineated exceptions" (U.S. Copyright Office and the National Digital Information Infrastructure and Preservation Program of the Library of Congress 2008, 130).

Instructed by Congress to investigate "[c]opyright and other laws applicable to the preservation of sound recordings,"[26] the National Recording Preservation Board's study, *The State of Recorded Sound Preservation in the United States*, identified two additional issues of copyright law that complicate the effort to preserve sound recordings and make them accessible. Many historical recordings are "orphan works" with no identifiable "author" to whom requests for permission to make them available can be directed. Institutions that preserve and make accessible orphan works risk lawsuits for copyright infringement should a copyright owner later surface. Furthermore, the study reported that strictly interpreted, section 108 of the copyright law prohibits preservation of a published recording before it has actually deteriorated so that an institution may legally

[25] The report also notes that Congress, by enacting Section 108 of the 1976 Copyright Act, "has recognized that the ability of certain research libraries and archives to preserve cultural and historical works for posterity is in the public interest" (65).

[26] National Recording Preservation Act of 2000 (P.L. 106-474), Sec. 124.

copy a recording only after it is audibly deficient.[27] Section 108 does not take into account current recommended technical practices and excludes most recordings from access provisions that it grants for other media.

Institutions with recorded sound collections find it difficult to obtain grant funding for audio preservation without a corollary plan to ensure that preserved recordings will be publicly accessible. "Funding requests for the preservation of sound collections must compete against requests for preservation of other media to which ready access is legal," the Board's study reported. This "expectation of access" has contributed to conflicts between rights holders and the institutions committed to preserving sound recordings (CLIR and Library of Congress 2010, 7–8).

Impediments to preservation within the copyright law are not the only legal barriers to audio preservation in the United States. Licensing restrictions are preventing preservation of some of the most recent recordings. Many recordings are distributed as "streams" only; copies are not offered for sale. Because libraries cannot legally download those recordings, they are unable to preserve them according to archival standards for future use. When sound recordings are offered for sale through the Internet as downloads, mandatory license agreements often restrict their use to "personal, non-commercial, entertainment" only, a condition that prevents libraries from legally acquiring them (see Recommendation 4.4).

It is impossible to predict whether Congress will pass revisions to the copyright law to alleviate all of these obstacles. Libraries and archives must work together to create agreements to ensure that new recordings can be preserved legally. Sadly, there is a perception that the interests of research institutions are at odds with those of the recording industry. The tension is unfortunate and detrimental to education and preservation.

The preservation and accessibility of the nation's audio heritage should be a priority to all parties. Congress called for a national sound recording preservation program to be implemented by the Librarian of Congress that "shall . . . coordinate activities to assure that efforts of archivists and copyright owners, and others in the public and private sector, are effective and complementary."[28] Without collaborative efforts between artists, distributors of recordings, and libraries and archives, the preservation of recordings made in the twenty-first century will be impossible, and our national heritage will remain at risk of being lost forever.

The following recommendations suggest ways to broaden public access to sound recordings and promote preservation along three

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[27] 17 U.S.C. § 108, entitled "Limitations on exclusive rights: Reproduction by libraries and archives," sets out conditions whereby qualified libraries and archives may legally reproduce or distribute copies of works protected by federal copyright law, including for purposes of preservation. Section 108(c) limits such duplication of published works "solely for the purpose of replacement of a copy or phonorecord that is damaged, deteriorating, lost, or stolen, or if the existing format in which the work is stored has become obsolete."

[28] National Recording Preservation Act of 2000 (P.L. 106-474), Sec. 111.

separate, but related avenues: (1) improvements in the processes of discovery and cataloging, (2) copyright legislation reform, and (3) organizational initiatives to facilitate legal public access to recorded sound collections.

Ensuring Access Through Discovery and Cataloging Initiatives

One of the goals of the national preservation program is to broaden access to preserved historical sound recordings. The depth and breadth of material in audio archives is such that a great number of resources have yet to be mined in areas ranging from acoustics, endangered languages, and history to musical performance practices. Although public institutions, libraries, and archives in the United States hold an estimated 46 million sound recordings, there is currently no efficient way for scholars to discover what sound recordings exist and where they can be found.

Although many historical recordings reside in public institutions, making them available to researchers remains problematic despite the existence of digital technology that could expand access to these recordings to a broad range of users. Existing catalogs are dispersed, sometimes proprietary, frequently incomplete, and often hard to use. The inadequacy of holdings information and intellectual control of collections severely hinders research and access opportunities. Relating the difficulty of discovery to the overall preservation effort, the report commissioned by the National Recording Preservation Board warns, "The lack of sufficient cataloging or description of collections may result in underuse of institutional audio collections and a consequent adverse impact on allocations of funding for the libraries and archives" (CLIR and Library of Congress 2010, 42).

The following three recommendations suggest that effective collaborations can be developed to improve opportunities for scholars and the public to discover and access audio materials relevant to their interests: a national discography documenting the recordings produced in the United States, a national directory of recorded sound collections, and the formulation of best practices in recorded sound cataloging.

Recommendation 3.1:
National Discography

> ***Encourage the continued development of an authoritative national discography through the expansion of existing discography projects.***

As noted earlier, some 46 million sound recordings reside in U.S. collecting institutions (Heritage Preservation, Inc. 2005, 40). For researchers, determining which of these recordings are most relevant for their studies is a daunting task at present. For collection managers, preservationists, and catalogers faced with the task of

prioritizing recordings for digitization and cataloging, determining which recordings in their collections are duplicated in other institutions can be time-consuming, if not impossible. A publicly accessible national discography offering authoritative documentation that details the production of recordings in the United States and the location of preservation copies in public institutions will aid researchers in discovering relevant materials and will help collections professionals efficiently manage, preserve, and catalog their recordings.

The discography will provide researchers with one website from which to search information from multiple discographies. Acquisition specialists will consult the discography to evaluate potential purchases. Collection managers and catalogers will rely on the discography for authenticated information about recordings in their collections. Preservationists will use the discography to track preservation masters and prevent redundant duplication. Metadata from the discography could be uploaded into WorldCat to benefit catalogers around the world.[29] If legislation were enacted to bring pre-1972 recordings under federal copyright protection (see Recommendation 3.4), the discography will help rights holders and those interested in reissues to establish dates of fixation and publication in order to determine lengths of copyright protection.

It will take decades to develop a comprehensive discography that authoritatively documents the entire history of commercial sound recording in the United States. Important steps already have been taken that will provide a foundation for future work, however. In March 2008, the University of California, Santa Barbara (UCSB) launched the Encyclopedic Discography of Victor Recordings (EDVR), a comprehensive discography of every acoustical recording produced by the Victor Talking Machine Company. Supported by grants from a private endowment and the National Endowment for the Humanities, EDVR provides all titles, all label-credited talent, many supporting personnel, composers, and authors, and all recording session dates, places of recording, and issue numbers of published recordings.[30] By the end of the current grant cycle, EDVR plans to have documented more than 100,000 recording sessions to include all published recordings through 1940 by RCA Victor (an antecedent of Victor) and Bluebird (a subsidiary of Victor), as well as all recordings produced by Victor's predecessor, the Berliner Gramophone Co., from 1892 to 1900. UCSB recently expanded its discography activities beyond Victor-related companies by initiating the American Discography Project (ADP), a new database and website to be devoted to American acoustical recording, and made arrangements to add comprehensive documentation for recordings produced by Brunswick, Columbia, and Okeh.

A comprehensive national discography, of course, must go beyond the era of acoustical recordings. As a first stage beyond ADP,

[29] WorldCat, "the world's largest network of library content and services," includes catalog listings for collections "from more than 10,000 libraries worldwide." See http://www.worldcat.org.

[30] See http://victor.library.ucsb.edu/.

documentation on all 78-rpm recordings should be considered. To allow for expansion beyond 78s, the database must be structured to accommodate documentation related to larger and more complex formats, such as long-playing records and compact discs. At a future stage, the discography might work best as a "wiki" site, in which volunteer moderators could verify proposed additions and revisions from public users. Holdings of access copies in public institutions also could be included.

To provide a structure, a discographic schema must first be created. In 2003, the ARSC Discography Committee, at the request of and with funds from the National Recording Preservation Board, began developing a universal discographic data structure (UDDS) to define, implement, and evaluate a data structure. This schema documents and relates the diverse data elements required to identify and characterize recorded sound and sound carriers. The first stage of UDDS will cover cylinders and 78s.

Licensing of published discographies by the national discography will be necessary, as will research to verify and expand information obtained from these sources. Access to corporate records will be important. Recording companies should be encouraged to preserve documentation about their recording activities and to make it available for this project, as well as to historians and media scholars (see Recommendation 4.3).

Recommendation 3.2: National Directory of Recorded Sound Collections

Create a publicly accessible national directory of institutional, corporate, and private recorded sound collections.

To increase access to information about the location and types of recorded sound collections in the United States, a general web-based directory or guide to institutional, corporate, and private collections should be developed. The registry will allow individuals and institutional representatives to create and update entries that describe in very broad terms the strengths and general character of their collections. The directory can be developed quickly and, thus, would serve as a key tool in the short term for identifying collections.

Many interests will be served by a publicly accessible web-based directory. In addition to aiding scholarly research, it will help producers locate collections with rare or unique materials (e.g., ethnic recordings originally issued in limited runs). Private collectors and stakeholders can identify institutions to serve as potential partners for preservation projects or as permanent repositories for their collections. Additionally, institutions with similar collecting interests will be able to find potential partners for collaborations in the areas of preservation and collection development. The directory can be created under the aegis of ARSC, which has prior experience with similar endeavors, but does not currently maintain a registry of collections.

To encourage the broadest possible participation, the model

should be scalable, beginning with very basic collections information requiring minimal input. An institution can then expand upon specific areas of strength, if desired. A combination of controlled-vocabulary selections and free-text opportunities will build into the directory some uniformity of language for searching while offering ways for collectors and institutions to describe the uniqueness of their collections.

Recommendation 3.3: Establishment of Best Practices for Audio Cataloging

> ***Establish an expert work group led by the Library of Congress to determine data required in a catalog record, and develop best practices for audio cataloging with the goal of streamlining standards.***

Scholars who use sound recordings in their research have indicated their difficulties in locating relevant materials. The problem of discovery extends across the full spectrum of recorded sound collections, including best-selling commercial recordings and unique unpublished recordings, and is particularly acute in the case of special and private collections. The problem is structural and stems in part from cataloging practices that do not sufficiently address issues of access and preservation that institutions might resolve through a collaborative effort.[31]

Even for large institutions, such as the Library of Congress, the rules and practices for cataloging sound recordings have proven not to be cost-effective. It is difficult to learn the requirements and very time-consuming to produce the catalog records. The resulting records may well include data unnecessary for users while essential information is omitted. For example, current catalog records ignore physical condition and generally do not indicate whether an item has been reformatted, thus impeding attempts at cooperative preservation.

In 2011, the Library of Congress characterized the establishment of "[e]fficiencies in the creation and sharing of cataloging materials" as "imperative." Acknowledging an ongoing "era of diminishing budgets and heightened expectations in the broader library community," the Library has advised that "information providers and cultural heritage institutions must reevaluate their use of scarce resources, both as individual organizations and as a community" (Marcum 2011).[32]

In line with the Library's recommendation, the National Recording Preservation Board should establish an expert work group to

[31] Other factors within institutions that remain challenging include the high level of complexity inherent in audio cataloging and the comparatively few resources, including staff, allocated to audio cataloging in comparison with text-based formats.

[32] In light of changes in digital technologies and the information industry, the Library recently organized a Bibliographic Framework Transition Initiative with the goal of developing "a new means for capturing and sharing bibliographic data." See Library of Congress 2011.

delineate best practices for audio cataloging to simplify the cataloging process into a more understandable and cost-effective operation. Participants in the expert work group, to be led by the Library of Congress, should represent a variety of constituent groups, including historical audio archives, digital repositories, scholars, discographers, private collectors, libraries, relevant professional associations, and OCLC. To coordinate its efforts with developments beyond the recorded sound community, the work group should consult with representatives from fields such as informatics and other experts in the changing library community, identify possibilities for collaborative efforts, and consider whether partnerships might be developed with corporate entities to create and share tools and data for the common good.

The work group should investigate barriers to the discovery of audio materials. It should explore the possibility that institutions could adapt existing database models and discographies to their own uses.[33] It should take into account issues related to born-digital recordings and electronic copyright deposits.

The work group should focus on simplifying and streamlining current and emerging audio cataloging standards in the following ways:

- Work from existing and emerging standards rather than inventing new ones.
- Consider the needs of the groups represented.
- Identify core elements of essential data, as well as nonessential data that may be omitted from current and emerging standards for sound recording cataloging.
- Provide suggestions and solutions to facilitate the harvesting of pre-existing metadata.
- Take into account such "forward-thinking" topics as "Next Gen" catalogs.[34]
- Develop cataloging aids, such as decision trees and recommendations for specific genres and formats.
- Encourage the consistent formatting of data elements across various library and archive groups through the development of rules for harvesting and mapping of data from various databases.
- Examine whether information on the condition and preservation status of recordings, which would aid preservation initiatives and circumvent redundant digitization efforts, should be included in catalog records.

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[33] As noted in Recommendation 3.1, the ARSC Discography Committee began developing a universal discographic data structure (UDDS) in 2003 to document and relate the diverse data elements required to identify and characterize recorded sound and sound carriers.

[34] Next Generation (or "Next Gen") catalogs currently under development are likely to provide capabilities not found in traditional library catalogs, including more sophisticated search abilities (such as faceted and federated searches), social networking activities (tagging, sharing, etc.), and more flexibility in general.

Copyright Legislation Reform

Sound recordings have a unique legal status in the United States. Unlike other works, such as books, pamphlets, poems, music, photographs, drawings, paintings, and motion pictures, they were not covered by federal copyright law (Title 17) until February 15, 1972.[35] As a result, recordings produced earlier have been subject to "a complex network of disparate state civil, criminal, and common laws" (CLIR and Library of Congress 2010, 110), a situation that complicates the efforts of libraries, archives, and educational institutions to preserve these recordings. Unless Congress revises the law, this situation will continue until February 15, 2067, when pre-1972 sound recordings are scheduled to enter the public domain (Hirtle 2012). The prospects for effective preservation of sound recordings by institutions holding large (and small) collections and increased funding to undertake this work would be significantly improved if sound recordings fixed[36] before February 15, 1972, were brought under Title 17, as the U.S. Copyright Office recommends in its December 2011 report.[37]

Institutions with recorded sound collections also face legal challenges in making their pre-1972 recordings available to users for research and educational purposes. A study sponsored by the National Recording Preservation Board found "that a significant portion of historical recordings is not easily accessible to scholars, students, and the general public for noncommercial purposes." One important factor to account for this lack of availability, the study concluded, was that "copyright law allows only rights holders to make these recordings accessible in current technologies, yet the rights holders appear to have few real-world commercial incentives to reissue many of their most significant recordings" (Brooks 2005, 14).

The National Recording Preservation Act of 2000 directed the National Recording Preservation Board to conduct a study and produce a report on issues affecting sound recording preservation and

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[35] Sound recordings fixed on and after February 15, 1972, became protected under federal copyright law by virtue of the Sound Recording Amendments to the 1909 Copyright Act, enacted in 1971. See Act of Oct. 15, 1971, Pub. L. No. 92-140, 85 Stat. 391. For a brief history of the protection of sound recordings in the United States, see Program on Information Justice and Intellectual Property, Washington College of Law 2009, 2–8; and U.S. Copyright Office 2011, 7–49.

[36] "Fixed" is distinguished in the federal copyright law from "published." Title 17 defines "fixed" as follows: "A work is 'fixed' in a tangible medium of expression when its embodiment in a copy or phonorecord, by or under the authority of the author, is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration. A work consisting of sounds, images, or both, that are being transmitted, is 'fixed' for purposes of this title if a fixation of the work is being made simultaneously with its transmission." "Publication," according to Title 17, "is the distribution of copies or phonorecords of a work to the public by sale or other transfer of ownership, or by rental, lease, or lending. The offering to distribute copies or phonorecords to a group of persons for purposes of further distribution, public performance, or public display, constitutes publication. A public performance or display of a work does not of itself constitute publication." On the significance of this distinction, see Program on Information Justice and Intellectual Property, Washington College of Law, 2009, 4–5.

[37] The Copyright Office concluded that federalization of pre-1972 recordings "would best serve the interest of libraries, archives and others in preserving old sound recordings and in increasing the availability to the public of old sound recordings" (U.S. Copyright Office 2011, viii).

access, including "[c]urrent laws and restrictions regarding the use of archives of sound recordings." The legislation stipulates that the report is to include "recommendations for changes in such laws and restrictions to enable the Library of Congress and other nonprofit institutions in the field of sound recording preservation to make their collections available to researchers in a digital format." The published report commissioned by the Board notes that "the study of the nation's social and cultural history is adversely affected by the terms of protection provided sound recordings under current copyright law." The report concludes, "Copyright reform . . . remains the key solution to preserving America's recorded sound history, protecting ownership rights, and providing public access" (CLIR and Library of Congress 2010, 7, 111).

To clarify rules allowing archives and educational institutions to preserve and, where permissible, to make older recordings accessible, the most consequential action of copyright reform that Congress can take is to enact legislation to ensure that sound recordings fixed before February 15, 1972, are protected under federal copyright law. A number of issues that affect preservation and access can be resolved only after pre-1972 recordings are protected under federal copyright law.

As this is the first national plan for audio preservation, it is important that its recommendations to change U.S. laws reflect the interests and concerns of all potentially affected parties. Toward this end, the Library of Congress, under the auspices of the Packard Campus for Audio Visual Conservation, convened a task force on copyright and audio preservation comprising specialists representing archivists, librarians, academe, the record and music industries, and private collectors. The task force was charged with crafting recommendations for changes in the copyright law that support preservation of and access to sound recordings without having negative effects on rights holders and artists.

The following recommendations were crafted by the Library's task force on copyright and audio preservation.[38] With one exception (see Recommendation 3.6, specifically on revising subsections 108(d) and (e) of the U.S. Copyright Law), the recommendations reflect consensus of the task force members. They focus exclusively on the responsibilities of qualified libraries and archives to preserve important sound recordings for posterity and to offer options for wider access that do not negatively affect the rights of performers and producers. They are issued with the intention to support the legitimate rights and interests of rights holders in their sound recordings and to avoid any harm to rights holders of underlying works.[39]

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[38] Although Recommendation 3.4 was completed after the Copyright Office report on federalizing pre-1972 recordings was published in December 2011, it reflects in general the recommendations of the Library's task force on copyright and audio preservation that were issued earlier.

[39] A separate issue that needs to be addressed if older recordings are eligible for preservation is how to efficiently license underlying musical compositions to make these recordings more widely accessible to library and archival patrons (especially as preservation funding is often tied to the ability to make material available to the public). Additional legal issues, existing contract obligations, and other considerations may need to be addressed if these recommendations are enacted.

Recommendation 3.4: Federal Copyright Protection for Pre-1972 Sound Recordings

Bring sound recordings fixed before February 15, 1972, under federal copyright law.

Many pre-1972 sound recordings will deteriorate long before 2067, the year in which they will enter the public domain under current federal law. Sound recordings historically have been fixed on media that are much more fragile than many other types of copyrighted works. A recent survey of libraries, archives, museums, and historical societies responsible for preserving recordings estimates that of the 46 million recordings existing in their collections, more than 6 million are "in need" or "in urgent need" of preservation. Many more may be at risk, as the institutions in the survey categorized the condition of more than 20 million of the recordings as "unknown" (Heritage Preservation, Inc. 2005, 40).[40] To complicate matters, state laws that prohibit unauthorized duplication of sound recordings make no provisions for duplication for preservation purposes by libraries or archives.

On December 28, 2011, the U.S. Copyright Office issued a congressionally mandated study on issues pertinent to extending federal copyright coverage to sound recordings fixed before February 15, 1972. The Copyright Office concluded that federal protection should apply to pre-1972 recordings "with special provisions to address ownership issues, term of protection, transition period, and registration" (U.S. Copyright Office 2011, 175).

The Copyright Office's recommendation accords with the objectives of the National Recording Preservation Plan.[41] Federal coverage for pre-1972 recordings will clarify ownership issues and specify terms of protection that do not vary from state to state. Coverage will provide certainty for qualified libraries and archives to undertake needed preservation copying and cataloging activities, and it will permit transparent rules for permissible access to these materials by library and archival patrons. For the first time, rights holders of pre-1972 recordings covered by federal law will become eligible for licensing payments under the Digital Performance Right in Sound Recordings Act of 1995—payments that are required only for transmissions of recordings protected by federal law.[42] Clarity in the law also will benefit rights holders of recordings for other licensing and exploitation purposes.

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[40] If Recommendation 2.2 of this plan is followed, comprehensive item-level appraisals of audio holdings will determine the at-risk status of many of these recordings.

[41] The recommendation also conforms with H.R. 2933, the Sound Recording Simplification Act, introduced by Rep. Jared S. Polis to the House on September 14, 2011, which proposes "to remove the exclusion from Federal copyright of sound recordings fixed before February 15, 1972." This bill, which seeks to amend Title 17 by eliminating the current subsection (c) of Section 301, has been referred to the Subcommittee on Intellectual Property, Competition and the Internet of the Committee on the Judiciary. As of October 2012, no additional members of Congress had become cosponsors.

[42] 17 U.S.C. § 114(f).

The uncertain status of pre-1972 recordings under (state) common law copyright severely limits the ability of institutions to allocate resources for recorded sound preservation activities. Section 108 of Title 17, which grants libraries and archives limited rights to copy federally protected *post*-1972 sound recordings for preservation and access purposes, does not currently apply to *pre*-1972 recordings because they are not covered under federal law (see Recommendation 3.6). In addition, the lack of clarity concerning copyright status and the inapplicability of section 108 hampers efforts to raise funds to save this material.

Federal coverage as recommended by the Copyright Office report will allow libraries and archives to preserve pre-1972 recordings through copying to digital formats and make them accessible to patrons much earlier than is currently possible. Under the provisions suggested by the report, coverage also will provide rights holders the opportunity to take advantage of the economic value that pre-1972 recordings may offer. The revision of the law suggested by the report will allow rights holders to retain federal copyright protection beyond the ordinary statutory period in order to "satisfy constitutional requirements of due process" in conformance with a precedent established in the 1976 Copyright Act (U.S. Copyright Office 2011, 164). With careful definitions and processes to determine when a recording is eligible for an extended term of copyright, this approach would not impede preservation and access by libraries and archives.

Terms of protection proposed in the Copyright Office report fall into two categories: (1) terms for recordings published before 1923 and (2) terms for recordings published between January 1, 1923, and February 15, 1972. For recordings published before 1923, which the report contends "would immediately go into the public domain" if the term of protection applicable to other types of works published before 1923 were to apply, the report offers rights holders the opportunity to acquire federal copyright protection for an additional 25 years under the following conditions. During a three-year transition period, rights holders seeking to obtain the additional period of protection must make the recordings available to the public "at a reasonable price," must inform the Copyright Office of this intention, and must ensure that the recordings remain publicly available at a reasonable price during the additional years of protection (U.S. Copyright Office 2011, 149, 177).[43]

For recordings published between January 1, 1923, and February 15, 1972, the report advises federal copyright protection that would last for 95 years from the date of first publication and for 120 years from the date of fixation if the recordings are unpublished, although protection would not continue after February 15, 2067. To secure an additional term of protection to last until February 15, 2067, copyright owners must make their recordings available to the public "at a reasonable price"; notify the Copyright Office of this intention; and ensure that the recordings remain publicly available at a reasonable price (U.S. Copyright Office 2011, 164).

[43] For a thorough discussion, see U.S. Copyright Office 2011, 149–174.

With one exception, these extended terms of protection are in accordance with the views of the task force on copyright and audio preservation convened by the Library of Congress. The Copyright Office's report specifies a term of protection of 120 years for unpublished recordings, a term that modifies the period of protection currently in place for other unpublished works: "the life of the author plus 70 years unless it is a work made for hire or is anonymous or pseudonymous, in which case the term would be 120 years from creation" (U.S. Copyright Office 2011, 150).[44] However, it was the consensus of the Library's task force on copyright and audio preservation, made up of librarians and archivists in addition to specialists representing the record and music industries, private collectors, and the scholarly community, that a flat 95-year term of protection for *both* published and unpublished pre-1972 recordings (other than those published before 1923) "would provide the simplest and most certain term for copyright owners and users."[45] That recommendation is in accordance with the national sound recording preservation program's Congressional mandate to "increase accessibility of sound recordings for educational purposes."[46]

A 95-year term of protection for unpublished pre-1972 recordings, other than those published before 1923, is not consistent with the length of term available for other types of intellectual property. Although consistency in the law often is warranted to achieve clarity and fairness of treatment, the distinctive history of pre-1972 sound recording creation and collection merits special consideration if recordings from this period are to be preserved for posterity.

Most of the 46 million recordings housed in public institutions in the United States never have been published. Most unpublished recordings are unique (Tibbo 2011). Most unpublished recordings made before 1972 were fixed on lacquer discs, acetate tapes, or polyester tapes, formats at high risk of deterioration because of chemical instability, external hazards, and replaying.[47] Many do not have clearly identified owners who can be contacted for permission to preserve the material and make it accessible to the public.

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[44] The Copyright Office justified the modification because of differences in the history and nature of sound recording creation from those of other intellectual property and because of difficulties in determining a term of protection based on the formulation for other types of work owing to the amount of time that will have passed between fixation of early recordings and the beginning of federal copyright protection: "the collaborative nature of sound recording authorship, the difficulties in calculating term of protection based upon the life of an author (or, in many cases, multiple authors) who may have died decades ago, and the likelihood that many pre-1972 sound recordings were created as works for hire." Ibid., 166.

[45] National Recording Preservation Board Copyright Task Force [Draft], January 8, 2011, Recommendation 3. In comments submitted to the Copyright Office in response to a Notice of Inquiry regarding extending federal protection to pre-1972 recordings, a number of organizations and institutions representing libraries and archivists, including the Library of Congress, the Society of American Archivists, and the Music Library Association, argued that the term of protection should be limited to 50 or 95 years. See U.S. Copyright Office 2011, 151–153.

[46] 2 U.S.C. § 1711.

[47] For more information on the deterioration to audio carriers, see Schüller 2008 and Casey 2007.

Institutions responsible for preserving recordings allocate their limited preservation resources to materials that can be of most use to the research community and the general public. Limiting the term of protection for pre-1972 unpublished recordings to 95 years will ensure that libraries and archives can preserve more of these unique materials for present and future generations without fear of legal redress for copyright infringement.

The Copyright Office states, "According to the House Report on the 1976 Copyright Act, enacting a provision that takes away subsisting common law rights and substitutes statutory rights would be 'fully in harmony with the constitutional requirements of due process' provided that the statutory rights endure for a reasonable period" (U.S. Copyright Office 2011, 153). Allowing rights holders of unpublished recordings the opportunity to secure additional protection until 2067 on the condition that their recordings remain available to the public will ensure that statutory rights endure for a reasonable period and that constitutional requirements of due process are satisfied. It also will ensure that libraries and archives responsible for preserving sound recordings and making them accessible have the legal right to do so.

It is important to note that the recommended extended terms for in-print pre-1972 recordings will be in the best interest of libraries, archives, scholars, and the public only if the law incorporates the following two restrictions on rights holders who are making their recordings available to the public in order to obtain additional years of protection:

- Rights holders must be required to make their recordings available without unduly restrictive licensing agreements that include language prohibiting libraries, archives, and the public from legally purchasing them or making them accessible for research and educational purposes.

  Digital audio files commonly are made available through end-user license agreements that limit uses to "personal, non-commercial, entertainment only"[48] (see Recommendation 4.4). Unless licensing agreements explicitly allow libraries and archives to acquire and preserve recordings through digital archiving and make them accessible to their patrons for research and educational uses, rights holders should not receive additional periods of federal copyright protection.

- Rights holders must be required to make their recordings available on a physical format (e.g., compact discs) or as digital downloads in formats of comparable quality (i.e., 44.1 kHz and 16 bit).

  For rights holders to gain extended copyright protection, digital streaming cannot be the sole means of satisfying the legal requirement for public access. Stakeholders testified in hearings held by the U.S. Copyright Office that streaming alone "does not provide sufficient access" for researchers. Many types of

[48] See Amazon MP3 Music Service: Terms of Use, http://www.amazon.com/gp/help/customer/display.html?ie=UTF8&nodeId=200154280&pop-up=1.

scholarship and teaching that make use of historical recordings require listening to excerpts repeatedly, for musical transcription and other purposes, as well as for comparisons of excerpts of recordings. Equally important, if not more so, access that is available only through streaming prevents libraries and archives from providing long-term preservation of recordings legally. The Copyright Office report concurs, stating that "[t]he Office does not believe that the requirement of making recordings available to the public should be satisfied merely by providing non-interactive streaming access to the works" (2011, 170).

Recommendation 3.5: Orphan Works

Enable recordings whose copyright owners cannot be identified or located to be more readily preserved and accessed legally.

The term *orphan works* has been adopted to describe copyrighted works for which copyright owners cannot be identified or located. Potential users of orphan works who have been unable to obtain permission to use the works legally often refrain from making productive and socially beneficial use of them, fearing the possibility of liability for copyright infringement; this is a situation that the U.S. Copyright Office has characterized as "not in the public interest" (2006, 1). Such potential users include libraries and archives committed to preserving orphan works and making them accessible to the public for educational purposes.

Legislation designed "to create a legal framework to facilitate the authorized use of so-called 'orphan works'," in the words of the Copyright Office, would greatly benefit the archival community (Pallante 2011, 7). A legal study commissioned by the National Recording Preservation Board concluded, "If such legislation is ultimately enacted, a limitation of liability for copyright infringement for orphan works could provide greater security for libraries that wish to copy and disseminate such works" (Besek 2009, 27).

Sound recordings that were fixed before February 15, 1972, however, will not be covered under orphan works legislation unless Congress also extends federal copyright protection to these works (see Recommendation 3.4). Should Congress enact orphan works legislation, even in the absence of federal protection for pre-1972 sound recordings, it is crucial that the legislation apply to works protected under state statutes and common laws.

With regard to more recent works, the Copyright Office has noted that changes in copyright registration and renewal requirements have made it much more difficult to determine copyright ownership. Orphan works legislation will facilitate preserving and making accessible older recordings and those produced in the more recent past.

The House and Senate considered orphan works legislation in the 109th and 110th Congresses. Although a Senate bill passed by

unanimous consent in the 110th Congress, a vote on a corresponding House bill did not reach the floor before the session ended. Subsequently, a federal court in 2011 ruled that the matter should be determined by Congress, rather than private parties, declaring that "questions of who should be entrusted with guardianship over orphan books, under what terms, and with what safeguards are matters more appropriately decided by Congress than through an agreement among private, self-interested parties."[49]

Orphan works legislation is especially relevant to the national effort to preserve our recorded sound history and make it publicly accessible. Many recordings were issued by small recording companies that have gone out of business or cannot be located. Ownership is inadequately documented for many types of recordings, including radio broadcast recordings (for which intellectual property rights have not been made explicit in the broadcast itself) and many unpublished works. It is recommended that Congress address the matter of orphan works at the earliest opportunity and that, in doing so, it considers the challenges that libraries and archives face in preserving sound recordings and making them publicly accessible.

Recommendation 3.6: Section 108 of the U.S. Copyright Act

> ***Revise section 108 of the U.S. Copyright Act of 1976 in order to facilitate preservation and expand public access to sound recordings.***

Section 108 of the U.S. Copyright Act of 1976 was enacted to grant certain exceptions and identify specific circumstances under which libraries and archives can legally make copies, including preservation and replacement copies. Section 108 (along with the right of fair use provided by section 107) also grants crucial exceptions allowing libraries and archives to reproduce materials for purposes of public access to further private study, scholarship, and research. Although these exceptions have been amended over the ensuing years, they are still exceedingly narrow, leading the Section 108 Study Group appointed by the Library of Congress and the Copyright Office to conclude that the law reflects the pre-digital era and "embodies some now-outmoded assumptions about technology, behavior, professional practices, and business models" (U.S. Copyright Office and the National Digital Information Infrastructure and Preservation Program of the Library of Congress 2008, i).[50] Furthermore, all post-1972 sound recordings that embody musical works are excluded from exemptions in subsections 108(a) and (d)–(g), while pre-1972 recordings are wholly ineligible for any section 108 exemptions.

The Library's task force on copyright and audio preservation recommends that a more comprehensive revision of section 108 be

[49] *Authors Guild v. Google Inc.*, 770 F. Supp. 2d 666, 677–678 (S.D.N.Y. 2011).

[50] Section 108 of the U.S. Copyright Act of 1976 was amended by the Digital Millennium Copyright Act of 1998, the Sonny Bono Copyright Term Extension Act of 1998, and the Preservation of Orphan Works Act in 2005.

undertaken to address issues and concerns relevant to the preservation of and access to sound recordings in the twenty-first century. The final report of the Section 108 Study Group set forth recommendations that, if adopted, would significantly benefit the preservation of historical sound recordings by U.S. libraries and archives. Additionally, the legislative changes governing eligibility and conditions under section 108 recommended by the Study Group would be significant steps toward addressing issues related to digital technologies, including those required for preservation, research, distribution, and access. The Section 108 Study Group report has been duly considered alongside the recommendations cited in *The State of Recorded Sound Preservation in the United States* (CLIR and Library of Congress 2010) and those of the Library's task force on copyright and audio preservation in formulating a course of action.

To meet the mandate of the National Recording Preservation Act to preserve and increase public accessibility of sound recordings, the following legislative amendments are required:

- Make all U.S. sound recordings, including those fixed prior to February 15, 1972, subject to section 108 of the Copyright Act of 1976.

  Because U.S. sound recordings made before 1972 are not subject to federal copyright law, they are currently not eligible for section 108 exceptions. Legislative action on Recommendation 3.4 would resolve this problem. As an alternative approach, should pre-1972 sound recordings not be placed under federal copyright protection in the near future, Congress should pass an amendment stipulating that section 108 applies equally to all sound recordings—regardless of whether they are governed by state or federal law.

- Expand subsection 108(a) eligibility beyond libraries, archives, and their employees to include other nonprofit institutions and independent contractors preserving recordings on behalf of nonprofit institutions.

  Exemptions afforded under section 108 are currently restricted to reproduction by libraries, archives, and their immediate employees. Museums frequently hold unique and significant recorded sound collections, however, and should be subject to the same preservation and access provisions as libraries and archives. Other nonprofit institutions with a public access or research component might be considered for section 108 exemptions as well, provided they meet certain functional eligibility requirements. The limitations under subsection 108(a) also should be extended to include outside contractors and service bureaus performing preservation and digitization work on behalf of eligible nonprofit institutions, as long as certain conditions are met to safeguard the interests of the rights holders (U.S. Copyright Office and the National Digital Information Infrastructure and Preservation Program of the Library of Congress 2008, iv).

- Revise subsections 108(b) and (c), which govern the reproduction of unpublished and published works, to allow for the use of current technology and best practices in the preservation of sound recordings.

  Subsections 108(b) and (c) present several obstacles to the preservation of sound recordings that must be ameliorated. First, the three-copy limitation on reproduction must be amended to accommodate best practices in the digital era. Nonprofit institutions should be permitted to make a reasonable number of copies of both published and unpublished sound recordings for replacement and preservation purposes, which requires the ability to produce and archive digital files in excess of the three-copy limit (CLIR and Library of Congress, 2010, 122–123). Second, the narrow focus of subsection 108(c), which limits duplication solely to *replacement* copies of a published work that is damaged, deteriorating, or in an obsolete format, must be expanded. Both replacement and preservation copies should be allowed for at-risk recordings, and copying must be allowed *before* damage or deterioration has compromised the sound carrier.[51] Third, the prohibition of offsite lending of digital replacement copies should be amended. Libraries and archives should be allowed to lend digital replacement copies under specific circumstances, such as when the original copy is in a physical digital medium that can lawfully be lent offsite and the replacement is in an equivalent format (U.S. Copyright Office and the National Digital Information Infrastructure and Preservation Program of the Library of Congress 2008, v).

- Amend subsection 108(i) so that out-of-print sound recordings fall under the provisions of subsections (d) and (e), regardless of content.

  Subsection 108(i) summarily excludes musical works and audiovisual works other than those dealing with news from the provisions of subsections 108(d) and (e), which govern access copies for users; this exclusion severely limits opportunities for private study, scholarship, and research. In addressing this issue, the Section 108 Study Group concluded that if subsection 108(i) is retained, it should be amended to "[l]imit the excluded categories of works to those where copying under subsections 108(d) and (e) might put the work at particular risk of market harm" (U.S. Copyright Office and the National Digital Information Infrastructure and Preservation Program of the Library of Congress 2008, xi).

  As providing limited access to out-of-print recordings under section 108 provisions would cause no market harm, subsection 108(i) should be amended so that sound recordings are eligible

[51] The Library of Congress has stated, "To deliberately delay preserving a culturally, historically or aesthetically important sound recording until it is in a deteriorated condition is a foolhardy practice that could constitute malfeasance on the part of a professional librarian or archivist. As they now exist, Sections 108 (b) and (c) place recorded sound archivists who perform their duties to the highest professional standards, plus the libraries, archives, museums and other institutions for whom they work, at odds with the word of the law, if not its intention." See Loughney 2011, 5.

for subsections (d) and (e), regardless of content, provided they are out-of-print. This would make the treatment of musical sound recordings consistent with that of other forms of intellectual property.

- Broaden the categories of "adjunct" works that may be eligible for subsection 108(d) and (e) treatment and use a formulation other than "adjunct" that captures the concepts of "embedded" or "packaged with."

  If subsection 108(i) is amended so that subsections 108(d) and (e) apply to additional categories of works, such as sound recordings with musical content, additional conditions should be included in subsections 108(d) and (e) to prevent material impact on the commercial exploitation of the affected works.[52]

- Revise subsections 108(d) and (e) to allow for the secure electronic delivery of digital copies for private study, scholarship, and research.[53]

  The Section 108 Study Group concluded that electronic access under subsections 108(d) and (e) should be permitted if adequate measures are taken to ensure that access is provided only to the designated single user and to prevent unauthorized reproduction or distribution of the work. Recent technological innovations have created various options for streaming audio files, and a growing number of companies provide password-protected secure streaming services. Record companies use secure sites to stream recordings (or even offer downloads) to members of the press for publicity and review. Libraries and archives should likewise be allowed to use these services, or to establish their own secure networks, to stream out-of-print recordings to researchers. Even if the streaming is limited to an interlibrary loan type service (library A streams requested recording to library B, where the researcher listens onsite), this would be a major step toward providing access to out-of-print recordings.

- Make sound recordings fixed prior to February 15, 1972, subject to subsection 108(h). For sound recordings produced prior to 1961, make subsection 108(h) applicable in the last 45 years of their copyright term (rather than the last 20 years, as is currently the case with other works) *provided that the works are not commercially available or cannot be obtained at a reasonable price*. For recordings made in 1961 or after, make subsection 108(h) applicable in the last 20 years of their copyright term.

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[52] This recommendation is closely adapted from language in the Section 108 Study Group Report, which includes a number of proposals that address issues related to the impact on the marketplace by a change in the law. See U.S. Copyright Office and the National Digital Information Infrastructure and Preservation Program of the Library of Congress 2008, 106-111.

[53] Not all the members of the Library's task force on copyright and audio preservation agreed on this issue.

This recommendation by the Library's task force on copyright and audio preservation is the result of several factors. Subsection 108(h) was intended to mitigate the impact of lengthening copyright terms by 20 years as required by the Copyright Term Extension Act of 1998, which provided libraries and archives (as qualified in section 108) and their users "the benefit of access to published works that are not commercially exploited or otherwise reasonably available during the extended term."[54] Subsection 108(h) recognizes that very few works are still commercially exploitable near the end of their copyright life, although many may be of great historical, cultural, and research importance.[55]

Applying subsection 108(h) to sound recordings fixed prior to 1972 would allow qualified libraries and archives to reproduce, distribute, or display in digital form a work toward the end of its term of copyright protection for purposes of preservation, scholarship, or research, provided certain benchmarks are met. Specifically, a library or archive could make a recording available if it is not otherwise subject to normal commercial exploitation by its owner and no copy can be obtained at a reasonable price. If either of these conditions apply, or if the copyright owner claims that either condition applies, the library or archives should not be able to take advantage of the exception provided in subsection 108(h).

The task force on copyright and audio preservation convened to advise on the national plan recommended further that Congress should make subsection 108(h) applicable to all sound recordings in their last 45 years of copyright term rather than in their last 20 years, as is currently the case with other works, provided that the works are not commercially available or cannot be obtained at a reasonable price. The task force agreed that applying subsection 108(h) to the last 45 years of copyright protection of sound recordings offers the best hope of providing the certainty and clarity that libraries and archives require to preserve recordings in their collections and make them accessible for scholarship or research.[56]

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[54] Copyright Term Extension Act, H.R. Rep. No. 105-452 (1998).

[55] Subsection 108(h) is currently applied to foreign sound recordings (that comply with the restoration provisions of section 104A), and should apply to U.S. and other non-section 104A recordings as well.

[56] The Library's task force on copyright and audio preservation report included the following alternative option in their report: "Alternatively, libraries and archives should be able to provide access to copyrighted sound recordings during their last 20 years of copyright, as is the case with Section 108(h) as currently written. This would not be as useful an exemption to scholars and researchers as one based on the last 45 years of copyright term. Its clarity and consistency with existing law, however, makes it an acceptable alternative to libraries and archives, especially when coupled with a copyright term based on fixation and not publication (thus clarifying many of the uncertainties as to what constitutes the last 20 years of term). Libraries and archives could reproduce, distribute, display, or perform in analog or digital form a copy of a sound recording during its last 20 years of copyright term so long as the original recording is not subject to normal commercial exploitation or a copy of the recording cannot be obtained at a reasonable price." See National Recording Preservation Plan Copyright Task Force [Draft], January 8, 2011, 6.

The longer "window" is intended in part to bring U.S. law into greater agreement with international practice. According to the World Intellectual Property Organization (WIPO) Performances and Phonograms Treaty of 1996, terms of copyright protection granted to performers and producers shall last at least 50 years.[57] Many of the major trading partners of the United States have limited the term to 50 years. On September 27, 2011, however, the European Union passed a directive to be implemented within two years by member states that will increase the term of protection for sound recordings from 50 to 70 years.[58] The European Union directive is not retroactive; pre-1961 recordings whose term ended after 50 years will remain in the public domain. To conform to the recent change to laws in Europe, this plan recommends that subsection 108(h) be made applicable to pre-1961 recordings in the last 45 years of their term of copyright protection and applicable to recordings made after 1960 in the last 20 years of their term.

The copyright status of U.S. recordings will not be affected if this recommendation is enacted into law; all recordings still will be protected. Underlying rights in musical compositions or texts and rights in album artwork, photographs, etc., will remain protected under the status quo copyright law. This "window" will allow a limited exception to copyright for the purposes of private study, scholarship, or research for works that are not commercially available and for which rights holders have not indicated a desire to make them available at a later date.

The potential impact on rights holders will be minimal. The report on the availability of historical recordings commissioned by the National Recording Preservation Board found that for the period 1955 to 1959, only 34 percent of recordings of historical interest were available on compact disc from the owners; for earlier years, the percentage was much lower (Brooks 2005, 7).[59] The *Gowers Review of Intellectual Property* similarly noted with regard to recordings sold in the United Kingdom: "Evidence suggests that most sound recordings sell in the ten years after release, and only a very small percentage continue to generate income, both from sales and royalty payments, for the entire duration of copyright" (2006, 52).

In sum, these recommendations are made because many older recordings of great historical, cultural, and research importance are not available in the marketplace. The recommendations are intended only to allow libraries and archives to fulfill valuable cultural and historical functions by making these noncommercial

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[57] See http://www.wipo.int/treaties/en/ip/wppt/trtdocs_wo034.html.

[58] Directive 2011/77/EU of the European Parliament and of the Council of 27 September 2011 Amending Directive 2006/116/EC on the Term of Protection of Copyright and Certain Rights, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:265:0001:0005:EN:PDF.

[59] Brooks limited his survey to "historical" recordings, "recordings in which there is documented interest" (3). The criterion for determining "documented interest" was the listing of a recording in one of 20 published discographies that are acknowledged reference sources, as well as a sampling of recordings included in the National Recording Registry (3).

recordings accessible, and only because they are not otherwise being made available by the rights holders. Those recordings that still have commercial viability will be excluded from this provision, as subsection 108(h) applies only to works that are out-of-print.

The Library's task force on copyright and audio preservation acknowledges that lengthening the period of the subsection 108(h) exemption beyond the term granted under the Copyright Term Extension Act could be perceived as having an unintended negative impact on the rights holders of underlying musical works. Therefore, the task force recognizes that if Congress allows libraries to make sound recordings accessible during the 20th to 45th years of the remaining copyright term (as opposed to only during the last 20 years), libraries may be required to pay mechanical reproduction fees to the owners of rights in the underlying work when such rights exist (i.e., the underlying work is not in the public domain).

The impact on the marketplace of a broader application of subsection 108(h) will be minimal. A library or archive could make a recording available under subsection 108(h) only if it is not otherwise subject to normal commercial exploitation by its owner (i.e., out-of-print and not available as a download) and no copy can be obtained at a reasonable price. If either of these conditions applies, libraries and archives may not take advantage of subsection 108(h).[60]

Improving Legal Public Access to Recorded Sound Collections

Many rights holders have not permitted researchers or the general public to listen to the recordings they legally control outside the limited scope of research facilities maintained by legitimate research institutions. In the study sponsored by the National Recording Preservation Board that surveys reissues of historical U.S. recordings created between 1890 and 1964 (more than 400,000 were listed in major discographies), author Tim Brooks (2005) reports, "Experts believe that the vast majority of recordings commercially issued in the United States—probably more than 90 percent—still exist in some form" (11). Yet Brooks states, "On average, rights owners have made available 14 percent of the historic recordings that they control from the various eras" (7).

Recorded sound researchers surveyed on obstacles to access reported that many archival institutions allow patrons the opportunity to listen to recordings only one time because of the fragility of materials and limited staff resources. However, such policies often do not satisfy researchers' needs: "Most researchers need to listen to the

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[60] In making subsection 108(h) applicable for sound recordings produced prior to 1961 in the last 45 years of their copyright terms, legislation would create exceptions different for sound recordings than for other types of intellectual property. In the interest of preservation, however, this inconsistency should be overlooked.

same passage over and over to hear the bowing technique of the violinist, to transcribe a jazz riff, to compare the interpretations of several artists performing the same piece, or to note the changes in an artist's performance over time" (Davenport 2010, 158). Travel and lodging costs required for visits to libraries and archives in distant areas also limit researchers. In the digital age, repeated reviewing of digitized materials and secure streaming of recorded materials to distant locales for research purposes could offer a solution to these issues, but institutions rarely can provide these aids to research because of restrictions imposed by rights owners and the copyright law.

The National Recording Preservation Board study acknowledged that in lieu of copyright reform, licensing agreements between public institutions holding sound recordings and rights holders could make it possible for libraries and archives to legally preserve and make their sound recordings digitally accessible to their users. "Creation of new copyright laws or licensing procedures that acknowledge best practices in audio preservation and assure access to audio heritage is essential to ensure the preservation of that heritage and its understanding and appreciation by generations to come," the study avowed (CLIR and Library of Congress 2010, 131).

Productive collaborations will be necessary to implement the following recommendations that are designed to develop effective ways for libraries and archives to make their collections more readily accessible to users:

- Effective license agreements for streaming
- A digital preservation network for sound recordings held by multiple institutions
- A labels ownership database to facilitate obtaining authorizations to stream recordings
- Broadened access to the vast sound recording holdings of the Library of Congress
- Establishment of codes of best practices to help clarify fair use rights of libraries and archives to preserve and make sound recordings available to patrons

Unless the issues addressed in the following recommendations are resolved, historical scholarship that uses sound recordings will continue to be limited.

Recommendation 3.7: Licensing Agreements for Streaming

Develop a basic model licensing agreement to allow on-demand secure streaming by libraries and archives of out-of-print recordings to researchers and the general public.

Educational and archival institutions are required to limit public access to recordings by allowing access only within special research centers maintained on their premises. They are prohibited by law from broadly disseminating audio collections material that they have

preserved using modern digital technologies. Few institutions have the legal resources to develop strategies for online streaming because of perceived cost, the challenges involved in identifying copyright owners, and the difficulties in forging agreements with one or more record companies to stream complete recordings. For example, the University of California, Los Angeles (UCLA), and Baylor University have developed model websites with access to hundreds of rare, out-of-print historical recordings, but must limit offsite streaming access to samples of 30 seconds or less.[61] With a practical licensing mechanism in place that covers on-demand secure streaming of out-of-print recordings, many more rare historical recordings could be made accessible to researchers.

The success of licensing agreements depends on convenient and accurate sources of information about the materials licensed, the extent of rights of the licensor to enter into the agreement, and assurances that the licensee will uphold the terms of the license. To have as broad an impact as possible, licensing should be available to all institutions, large and small. Owing to challenges in these areas, rights holders (typically record companies) have rarely licensed material that is not in great demand, nor have they offered licenses to educational entities at affordable rates. The Sound Recordings Label Ownership Database (Recommendation 3.9) will greatly assist with identifying rights holders of materials to be licensed. Simplified licensing would provide new revenues for rights holders, a broader spectrum of historical recordings accessible to the public, and increased preservation.

A streamlined licensing process will result in

- Licensing costs that reflect the commercial value of a recording, based on two factors: (1) how long it has been out-of-print and (2) the number of listeners it attracts once it has been made available through streaming. Recordings that have been out-of-print for several decades should be made available free of charge or at a very low cost.
- Licenses that are easily obtainable, even when there is doubt about the rights status of a recording (e.g., protected, orphaned, public domain, and cases of unknown contractual obligations to performers). Presently, many libraries and archives self-impose limitations on public access rather than risk infringing on rights holders' interests.
- New streams of revenue for record companies and other rights holders.
- Reduced risks to record companies from claims by other rights holders to proceeds.

To achieve these outcomes, the following steps are recommended:

- Rights holders should collaborate with libraries and archives to make information regarding their rights more freely available

[61] See UCLA's The Strachwitz Frontera Collection of Mexican and Mexican American Recordings (http://frontera.library.ucla.edu/index.html) and Baylor's Black Gospel Music Restoration Project (http://digitalcollections.baylor.edu/cdm/landingpage/collection/fa-gospel30).

through a database that will serve as a central resource for label ownership information (see Recommendation 3.9).

The resource will be especially useful if record companies collaborate with libraries and archives to define parameters of eligible recordings (e.g., range of dates, labels, commercial availability in digital format).

- A licensing system should be established whereby companies designate groups of out-of-print recordings eligible for licensing at a fixed rate.

- The model of the Library of Congress National Jukebox should be expanded.[62]

  Rights holders should be encouraged to provide free or very low-cost licenses to libraries and archives that wish to make large collections of out-of-print recordings available as streams to the public. As with the National Jukebox, libraries and archives would provide rights holders with usage statistics to allow them to gauge public interest in commercial reissues of individual recordings. Rights holders would have the right to request the removal of a recording from a streaming site if the recording is republished and it is determined that the streaming service will adversely affect sales.

- Archives and rights holders should cooperate in scalable digitization projects.

  Rights holders often may be able to provide master recordings for digitization. Archives can provide preservation storage (of benefit to rights holders) and public access (of benefit to the public).

- For pre-1972 recordings that are out-of-print, systems for payments to artists via a rights organization for streaming should be established, and Congress should be encouraged to pass legislation to indemnify institutions that provide streaming services from damages when applicable rights have been paid to record companies, music publishers, and artists' representatives.

Recommendation 3.8: Recorded Sound Preservation Access Network

Create a shared preservation network for access to sound recordings held by multiple libraries and archives.

Major audio archives across the United States hold millions of sound recordings that are in need of reformatting to ensure their long-term accessibility. To make these recordings available to researchers in a way that enables repeated playback without harming the originals through excessive wear and handling, digital surrogates must be created. Furthermore, because multiple audio archives hold copies

[62] See http://www.loc.gov/jukebox/.

of many recordings in need of reformatting, they should undertake a collaborative effort to develop a digital registry of preservation masters and a digital repository of access files. This approach would eliminate duplication of effort and ensure the best use of limited funding resources.

The Recorded Sound Preservation Access Network will offer a secure location for the storage of derivative files of sound recordings digitized by partner archives and will maintain a licensing system to enable sharing of access copies of preserved recordings. Digital access copies will be available only to signatory libraries and archives that hold a physical copy of preserved recordings. Similar collaborative repositories currently exist for digital libraries and could serve as models or perhaps could be expanded to include audio materials.[63]

The long-term goal of the Recorded Sound Preservation Access Network will be to enable archives and libraries to have legal access to derivative files of out-of-print sound recordings digitized by members. Participants in the network will be bona fide rights holders (e.g., record companies, performing rights organizations) and public and nonprofit archives and libraries exclusively. Files in the repository will be either in the public domain or available through negotiated licenses with recording companies.

The Recorded Sound Preservation Access Network will operate in the following manner:

- The network will maintain a registry of preservation masters of audio recordings.
- The network will obtain and administer blanket licenses from intellectual property owners (e.g., record companies, music publishers) and use agreements with network participants.
- When ownership of a copy of a recording by a member library or archives is designated in the registry, the licensed network participant will have access to high-quality derivative files of the sound recording digitized for preservation.
- Members of the network will create preservation files of recordings and derivatives for sharing with authorized institutions,[64] with accompanying descriptive metadata to allow for effective discovery.
- The Recorded Sound Preservation Access Network will include administrative metadata and procedures to ensure the security of the network and prevent illegal uses of the preservation files and high-quality derivatives.

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[63] The HathiTrust Digital Library (http://www.hathitrust.org/), which provides long-term preservation and access to both public domain and in-copyright digital content (primarily books) from more than 50 major research libraries, has considered expanding to include non-print formats. The Digital Public Library of America (http://dp.la/) envisions organizing a freely accessible national digital library that will "incorporate all media types and formats including the written record—books, pamphlets, periodicals, manuscripts, and digital texts—and expanding into visual and audiovisual materials in concert with existing repositories."

[64] Access issues (e.g., whether offsite, in addition to onsite, access will be available) will need to be explored.

- Digital content in the network could include any recording controlled by owners of intellectual property that provide licenses to the network.

Recommendation 3.9:
Sound Recording Labels Ownership Database

> ***Create an online public registry of owners of sound recording labels.***

Contributors to the study of recorded sound preservation commissioned by the National Recording Preservation Board observed that one of the greatest challenges to obtaining authorizations to stream, distribute, or otherwise make available historical sound recordings is identifying the legal owners of the recordings. Because there was no federal copyright protection for recordings until 1972, information about rights holders, as found in copyright registration applications, never has been compiled in a publicly accessible form. It also can be difficult to locate information about ownership of later record labels because formal copyright registration is not required legally and record companies frequently have changed hands. Developing an online public registry of owners of sound recording labels, thus, is an essential step in facilitating legal uses of historical sound recordings.

As a component of the Audio Preservation Resource Directory website (Recommendation 1.6), the Sound Recording Labels Ownership Database will include the most up-to-date information available about ownership of commercial record labels by corporations and individuals. Information should be compiled from various sources, including the record industry, rights organizations, expert researchers, and Copyright Office records. The database not only will aid all parties seeking to obtain permission or licenses to reproduce or disseminate sound recordings, but also will help establish whether a particular label is "orphaned." Support for the project should be sought from the record industry and the National Recording Preservation Board. The database should be hosted by the Library of Congress in view of its technical resources to maintain the registry and its ability to make the registry available without charge over the Internet. All content will be for informational purposes only; the database is not intended to be a legal registry of ownership.

Recommendation 3.10:
Expansion of Public Access to Sound Recordings Preserved by the Library of Congress

> ***Explore ways to make sound recordings that have been digitized by the Library of Congress accessible to researchers throughout the United States.***

The recorded sound holdings of the Library of Congress are vast; the Library has the largest such collection in the United States, totaling nearly 3.5 million recordings that embody more than 120 years of

audio history. Although the Library has digitized and made available on its website important early recorded sound collections, most of the recordings in its collections are accessible only to researchers who are able to travel to Washington, D.C. To make the Library's recorded sound collections more widely accessible to the research community, a study commissioned by the National Recording Preservation Board proposed that "facilities for deep, repetitive, and manipulative listening" could be established in each state to provide researchers with opportunities to more fully explore the recorded sound history residing in the Library's collections (Davenport 2010, 161).

The Library of Congress should investigate the best way to develop a national network of affiliated research and preservation institutions where copyright-protected materials digitized from the Library's collections could be delivered to listening stations through secure delivery systems. Legal exemptions or licensing agreements will be necessary to achieve this objective. A limited pilot project could be developed at first, but the network should have as its goal the establishment of at least one Library-affiliated institution in each state. Funding for the initiative could be provided by state, academic, or local libraries; the National Recording Preservation Foundation; and other sources.

Recommendation 3.11: Code of Best Practices in Fair Use

Devise a code of best practices in fair use for sound recordings that libraries and archives can adapt and use.

"Fair use," originally a common law doctrine, was incorporated into federal law through the 1976 Copyright Act as "one of the principal means by which copyright accommodates First Amendment values," according to legal scholar June M. Besek (2009, 58). Specifically, section 107 of the Copyright Act stipulates that the fair use of copyrighted materials, including the act of reproducing them, does not constitute copyright infringement even if permissions of copyright owners for such use are not obtained. The law identifies purposes for which fair use may be applicable—"such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research"—and specifies factors to be considered in determining whether any particular use of copyrighted materials may be permitted under the fair use doctrine: "(1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work."[65]

In a study commissioned by the National Recording Preservation Board, Besek asserts, "Preservation and dissemination by a nonprofit digital library or archives for scholarly or research purposes

[65] 17 U.S.C. § 107.

would be the kind of use favored by the law" (2009, 9). The House report that accompanied the 1976 revisions to the Copyright Act specifically notes that "the making of duplicate copies for purposes of archival preservation certainly falls within the scope of 'fair use.'"[66] The U.S. Copyright Office report on bringing federal copyright protection to pre-1972 recordings states that "[b]ecause of limitations of section 108, libraries and archives increasingly rely on fair use in undertaking digital preservation, and the scope of the fair use doctrine in this context has never been adjudicated" (2011, 84).

Despite these opinions, a recent survey of librarians found a "lack of consensus about applying fair use" that results in "[c]ompromised integrity and utility of collections, for failure to preserve and make access copies" (Association of Research Libraries; American University, Center for Social Media, and Washington College of Law Program on Information Justice and Intellectual Property 2010, 18–19) . Similarly, the Library of Congress task force on copyright and audio preservation has concluded that it is not "clear if concepts such as 'fair use' (section 107) may be applied to permit certain types of preservation or access activity."[67] Besek cautions that "[t]here is no formula to determine whether a use is fair" and warns that because "most other countries do not have a fair use doctrine," streaming by a library that might be protected as fair use in the United States "requires consideration of potential exposure under foreign laws"(2009, 61).

The appropriateness of applying fair use principles to archival sound recording preservation activities can be determined only on a case-by-case basis. A code of best practices in fair use for recorded sound should be commissioned to aid institutions committed to preserving and making accessible their recorded sound collections. Similar codes have been developed or are under development by other associations related to scholarly research and publishing, creative communities, academic and research libraries, and teachers.[68] A code of best practices representing a consensus of the recorded sound preservation community and developed in consultation with representatives of the rights holder community should address typical situations that archives face when considering whether fair use principles can apply to their activities. The code will provide guidelines for institutions to use when confronting specific cases and a model for institutions to adapt when creating their own codes.[69]

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[66] See H.R. Rep. No. 94-1476, at 73. The House report specifically refers to "preserving for posterity prints of motion pictures made before 1942," but presumably fair use considerations also would apply to recorded sound preservation activities that similarly require duplication of copyrighted materials.

[67] National Recording Preservation Board Copyright Task Force [Draft], January 8, 2011, 2.

[68] For examples, see American University, Center for Social Media, http://www.centerforsocialmedia.org/fair-use. For a template that organizations and institutions can adapt to create their own codes, see Aufderheide and Jaszi 2011, 156–161.

[69] The U.S. Copyright Office report on federal copyright protection for pre-1972 sound recordings notes, "As cases relating to digital copying wind their way through the courts, section 107 will continue to evolve and libraries and archives across the country should be better able to create policies and practices in response. To the extent that these decisions come from appellate courts, libraries and archives throughout the United States could find themselves in a position to create national standards, rather than state-by-state projects, for pre-1972 sound recordings" (2011, 92).

4. Long-Term National Strategies

Preservation of the nation's recorded sound heritage is too great a responsibility for any one institution. Since the nineteenth century, an ever-expanding array of sound recording formats and genres have been produced and disseminated by diverse groups. Preserving these recordings will require coordinated efforts by libraries, archives, corporations, and private individuals. The collection and preservation of born-digital recordings, which require a high level of management and technical infrastructure, present particular challenges. Funding for audio preservation and access initiatives is scarce. These challenges require a well-organized national effort on the part of all stakeholders to achieve success. Leadership by the Library of Congress and the National Recording Preservation Board will be instrumental in coordinating an effective national preservation program.

Recommendation 4.1: The National Recording Preservation Board

> ***Charge the National Recording Preservation Board with providing assistance to the Library of Congress in coordinating and implementing national sound preservation efforts, and in advancing public awareness of the national program.***

The Librarian of Congress established the National Recording Preservation Board in the Library of Congress in accordance with a directive in the National Recording Preservation Act of 2000. The law identified the following as the Board's responsibilities: reviewing and recommending nominations for the National Recording Registry, conducting a study on sound recording preservation and restoration, and issuing a report based on the study. With the publication of *The State of Recorded Sound Preservation in the United States* in August 2010, the latter responsibilities of the Board were achieved.

The Librarian of Congress also was tasked by the National Recording Preservation Act to consult with the Board to "implement a comprehensive national sound recording preservation program, in conjunction with other sound recording archivists, educators and historians, copyright owners, recording industry representatives, and others involved in activities related to sound recording preservation, and taking into account studies conducted by the Board."[70] The Board's expanded role as a consulting and implementing body for the Library of Congress will include the following tasks:

- Assist in the expansion of sound recording preservation programs in institutions throughout the United States.
- Promote greater public access to historically, culturally, and aesthetically significant sound recordings.

[70] National Recording Preservation Act of 2000 (P.L. 106-474), Sec. 111, as amended by the Library of Congress Sound Recording and Film Preservation Programs Reauthorization Act of 2008 (P.L. 110-336).

- Assist in the development of a coordinated national sound recordings acquisitions and collections policy.
- Advance educational and professional training goals in the field of audio preservation.
- Disseminate reliable information about sound recording preservation to archivists, audio preservation specialists, educators, and the public.
- Promote public awareness of the need for preserving the nation's recorded sound heritage.
- Encourage the coordination of national-level fundraising strategies to identify resources and develop effective programs for sound recording preservation fundraising.

The Board will promote partnerships between public institutions, nonprofit organizations, the recording industry, the collecting community, and companies that create and distribute sound recordings in all genres and formats to accomplish these purposes and goals. The Board's active involvement in the ongoing audio preservation effort as recommended in this plan will be crucial to the program's success.

To address specific issues not fully covered in the plan or in existing studies, the Board, in coordination with the Librarian of Congress and the staff of the Library's Packard Campus for Audio Visual Conservation, will create ad hoc committees and advisory groups of experts in specific fields of study. These groups will keep the Librarian, the Board, and the recorded sound community advised of recent developments, needs, and trends in recorded sound preservation and scholarship. These varied groups may include

- Experts who can advise the Board on trends in scholarship that might affect audio acquisitions policies and suggest initiatives to promote a greater use of sound recordings as primary source materials
- An expert work group to identify broad categories of recorded sound materials that are generally not well cataloged or "discoverable," and to consider nationally coordinated efforts to improve access for scholars and other users
- An advisory committee that meets periodically to review and make recommendations concerning the national technical research agenda

The Expanded Role of the National Recording Preservation Board

The National Recording Preservation Board currently advises the Librarian of Congress on annual selections for the National Recording Registry and on matters of policy relating to recorded sound preservation in the United States. Under the National Recording Preservation Plan, the responsibilities of the Board, under the auspices of the Librarian of Congress, will be expanded. The following new functions of the Board, described in other recommendations (as indicated), will be integral to the successful implementation of this plan:

- Establish an Executive Leadership Committee on Recorded Sound Preservation (Recommendation 4.2)
- Develop a coordinated national recorded sound collections policy (Recommendation 4.3)
- Resolve digital licensing issues of importance to research libraries and archives (Recommendation 4.4)
- Develop fundraising strategies in coordination with the National Recording Preservation Foundation (Recommendation 4.5)
- Convene periodic conferences or meetings to assess the progress of the national audio preservation program (Recommendation 4.6)
- Urge the construction of new archival storage facilities, or the conversion of existing facilities, for audiovisual media (Recommendation 1.1)
- Promote the establishment of university programs in audio archiving and preservation, and continuing education programs for audio engineers, archivists, curators, and librarians (Recommendations 1.4 and 1.5)
- Assist in establishing a web-based Audio Preservation Resource Directory (Recommendation 1.6)
- Encourage funding agencies and foundations to support comprehensive archival surveys of audio collections (Recommendation 2.2)
- Establish an expert audio cataloging group to delineate best practices (Recommendation 3.3)

Recommendation 4.2: Executive Leadership Committee on Recorded Sound Preservation

Organize an advisory committee of industry executives and heads of archives, under the auspices of the National Recording Preservation Board and in collaboration with the National Academy of Recording Arts and Sciences (NARAS), to address recorded sound preservation and access issues that require public-private cooperation for resolution.

To aid in the implementation of the recommendations in this plan, the National Recording Preservation Board should establish an Executive Leadership Committee on Recorded Sound Preservation. Such a committee should include top executives from recording companies and heads of sound recording archives. The committee, which will meet on an ad hoc basis, will be charged with the following responsibilities:

- Ensuring a continued commitment of those at the highest level of the recording industry to assist the Library of Congress and the National Recording Preservation Board in implementing the recommendations of this plan
- Resolving conflicts that arise between rights holders and archives regarding preservation and access objectives and policies; for example, the development of special licenses to facilitate preservation work and access (see Recommendation 4.4), and consideration of the unique challenges for preservation work and access related to recordings produced by now-defunct recording companies
- Addressing new challenges that arise as regulations, laws, technology, and institutional practices regarding sound recordings evolve
- Advising the Board on ways to ensure that funding for preservation will meet national needs
- Intervening promptly in crisis situations, for example, in response to the identification of a collection at risk because of an emergency (e.g., fire or natural disaster); the Executive Leadership Committee could provide assistance in marshalling resources to save the collection, arrange acquisition by an archive committed to preserve it, or develop a grant application for emergency preservation purposes

The composition of the Executive Leadership Committee on Recorded Sound Preservation is critical. Participants must be drawn from a level of management capable of committing corporate resources to the implementation of recommendations, resolving conflicts, intervening in crisis situations, and addressing new challenges. These individuals must possess sufficient authority not only to speak for their corporations and nonprofit organizations, but also to

influence the actions of other leaders. Appropriate committee make-up would include record company executives at the senior level paired with the heads of leading libraries and archives. In addition, the Library of Congress, ARSC, NARAS, and other key organizations should be represented on the committee.

Recommendation 4.3: A Coordinated National Collections Policy

> ***Develop a coordinated national collections policy for sound recordings to include the establishment of "partner archives" for receiving copyright deposits; collaborative efforts to collect born-digital recordings; and a strategy to collect, catalog, and preserve locally produced recordings, radio broadcast content, neglected and emerging audio formats and genres, and corporate documents.***

The National Recording Preservation Board should develop a strategic plan for the national coordination of the collection of recorded sound to ensure that all genres and formats are acquired, preserved, and made accessible to researchers. The Library of Congress will need to collaborate with established archives and the Copyright Office to achieve these goals. Identifying, collecting, and preserving born-digital recordings and radio broadcast content, in particular, presents significant challenges.

The Library of Congress Packard Campus for Audio Visual Conservation is responsible for identifying contemporary recordings of artistic and cultural significance, and ensuring that they are acquired through the deposit requirements of U.S. copyright law so that they can be preserved and made available to researchers. Because sound recording publishing and distribution has radically changed in the twenty-first century, it has become even more challenging for the Library to identify and acquire all significant new releases for preservation. Increasingly, performers are producing and distributing their own recordings or are affiliated with independent, rather than major, recording companies. Many published recordings take the form of digital files and are available only through the Web; they are not published as compact discs or in other physical forms. Only a fraction of newly published recordings are registered with the Copyright Office and, therefore, acquired by the Library of Congress.

A plan for national coordination in the collection of recorded sound should include the following steps:

- To ensure that the Library of Congress acquires a greater number of significant published recordings through the Copyright Office, the Library should establish acquisition partnerships with other institutions that have expertise in specific genres of music and recorded sound to identify significant recordings and make efforts to acquire them through copyright deposit.

  Section 407 of the Copyright Act of 1976 requires copyright owners to deposit with the U.S. Copyright Office two copies of the "best edition" of copyrighted works "for the use or disposition of

the Library of Congress."[71] As the Register of Copyrights and the Librarian of Congress have noted, mandatory deposit "has been one of the most important methods for building the Library's collections and making it the world's largest repository of knowledge and creativity."[72] Tens of thousands of published recordings, however, have not been registered or deposited with the Copyright Office.[73]

Partner archives will assist the Library by identifying artistically and culturally significant recordings that should be claimed by the Library for copyright deposit and subsequent preservation. The Library will transfer to a partner archive one of the two copies of certain sound recordings it receives via mandatory deposit. In this way, the Library and its partner will share responsibility for the physical security and preservation of the recordings. The Library of Congress, its acquisition partners, and the National Recording Preservation Board should establish contacts with independent creators of sound recordings and major record companies, and call attention of all stakeholders to the benefits of complying with the deposit requirements of the U.S. copyright law.

- The Library of Congress should work with the Copyright Office to develop and implement as soon as possible an eDeposit infrastructure that will enable the Library to acquire copyright deposits of "online-only" audio recordings (i.e., electronic works published and made available exclusively online) to preserve them for posterity.

  Copyright owners of published online-only works have been exempt from the mandatory deposit requirement.[74] Recognizing that "the current inability of the Library to acquire online-only works through mandatory copyright deposit places the long-term preservation of the works at risk," the Copyright Office adopted an interim rule effective February 2010 allowing it to demand mandatory deposits for online-only works in specific categories.[75] The Office issued mandatory deposit notices in September 2010 to a cross-section of the electronic serials publishing community to

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[71] 17 U.S.C. § 407(b). For a discussion of "best edition," see U.S. Copyright Office 2012.

[72] 75 *Fed. Reg.* 3865 (January 25, 2010).

[73] A survey of copyright registration records conducted for the Board's recorded sound preservation study determined that only two of ten "relatively small U.S. record labels, each known for issuing discs of critically acclaimed 'indie rock' groups" selected for the survey registered sound recordings in 2007. See CLIR and Library of Congress 2010, 46.

[74] In 1978, the Copyright Office exempted machine-readable works (e.g., automated databases) from the mandatory deposit requirement of Title 17, as these works "were not widely marketed to the public." The exemption was amended in 1989 to require copyright owners to deposit machine-readable works that were published in physical form, leaving "automated databases available only online" exempt from the requirement. The Office's subsequent practice, "to interpret this category broadly to encompass *all* electronic works published only online," was adopted "as a matter of convenience because, at that time, the Library exhibited neither the intention nor the technological ability to collect such works." See 74 *Fed. Reg.* 34286-34287 (July 15, 2009) for a brief history of Copyright Office policies exempting online-only works from the mandatory deposit requirement.

[75] 75 *Fed. Reg.* 3864-3865 (January 25, 2010).

determine viable packaging and submission processes for these works. The subsequent submissions, each of which was unique, "created tremendous technical challenges" for the Library and for publishers who responded to demand notices.[76] The Copyright Office has acknowledged the need to develop with the publishing community workable packaging standards, transmission protocols, and file structures.

The Copyright Office and the Library should make sound recordings the next category to qualify for eDeposits. Born-digital, file-based recording has become the predominant means of audio production.[77] Future generations will need access to born-digital recordings to understand twenty-first century political, social, and cultural history. The Office and the Library should work with the recording community to develop a secure eDeposit infrastructure for the mandatory deposit of online-only sound recordings, an infrastructure in which copyright owners can be confident that the files they deposit with the Copyright Office will not be pirated. As soon as possible and with legal sanction through statutory amendment, existing legal authority, or by permission of rights holders, the Packard Campus for Audio Visual Conservation should initiate a program to methodically harvest born-digital recordings from websites. Partner archives could assist in recommending artistically and culturally significant websites and Internet broadcasts. Congress should provide adequate funding to the Packard Campus to build the technological infrastructure required to preserve future born-digital works.

- The Library of Congress should collaborate with the Copyright Office to develop a process whereby high-quality audio files may be deposited with the Library for secure storage and preservation in perpetuity as an alternate means to satisfy the requirement that rights holders deposit copies of the "best edition" of their published works or to serve as a supplement to that process.

  According to copyright law, two copies of the "best edition" of a published sound recording must be deposited with the Copyright Office within three months of publication. The language in the law is insufficient, however, to guarantee the long-term preservation of born-digital recordings. Many sound recordings currently are distributed to the public in highly compressed audio formats, such as MP3, which often do not contain enough information to adequately preserve the original sound recorded. During workflows, rights holders often create files that are of higher resolution than those offered for sale. If the Library of Congress is to develop a preservation quality repository of these recordings, it is essential to adopt, through statutory amendment where

[76] 76 *Fed. Reg.* 21043 (April 14, 2011).

[77] *Born-digital audio*, a term used to describe all audio recorded digitally at the point of creation, includes works that are recorded to physical formats (DAT, CD, DA-88, ADAT, etc.), but more commonly refers to file-based recordings on formats such as WAVE (.wav) or MP3.

necessary, deposit guidelines for born-digital recordings that lead to the acquisition, ingestion, and long-term preservation of those unpublished, higher resolution files. For common monaural or stereo recordings, this would be 96 or 192 kHz and 24 bit, or at the minimum, the resolution of a commercial compact disc, 44.1 kHz and 16 bit. For other structures (e.g., surround sound recordings or multitrack materials of other types), the preferred versions for the collection should follow emerging general practice guidelines for born-digital—or better, *born-archival*—content, as outlined in Recommendation 2.7.

- The National Recording Preservation Board should encourage statewide and regionally based coordinated programs to collect and preserve locally produced recorded sound, including radio broadcasts.

  Locally based recordings are likely to be published in small quantities; or, if unpublished, are unique and in great danger of loss. Some states and municipalities have libraries or archives with official government music divisions that are natural hubs for coordinated efforts among content producers and archives to collect and preserve recordings. In other states, such institutions as libraries, archives, and historical societies should be called upon to take the lead. In either case, statewide collecting efforts will need support to build and maintain cooperative preservation efforts.

  The National Recording Preservation Board should help facilitate these efforts by identifying one or more institutions in each state to develop, support, and coordinate statewide cooperative efforts; supporting efforts to survey recorded sound material produced and held in each state, including collections from radio stations, universities, local businesses, and local festival organizations; encouraging producers to contribute their recordings to statewide repositories; and maintaining a national listing of statewide efforts and contacts through the Audio Preservation Resource Directory website (Recommendation 1.6).

- The Board should establish a subcommittee to develop strategies and tools to collect and preserve radio broadcast content. Among the subcommittee's first actions should be the convening of a symposium on the challenges to preservation of American radio broadcasts and possible solutions.

  Radio programs make up a significant portion of the nation's recorded cultural history and encompass an array of genres, including news, music, drama, variety, soap operas, sports, quiz shows, public affairs, presidential addresses, community affairs, religious programming, propaganda, and educational shows. Although many libraries and archives have acquired collections of historical radio broadcast recordings, there have been few systematic efforts to collect contemporary commercial radio broadcast recordings, and to document and preserve the entire range of extant broadcasts in private and public collections. The Corporation

for Public Broadcasting's American Archive project is an attempt to preserve and manage public radio and television broadcast materials; however, there has been no systematic effort to collect American commercial radio programming at the national and local levels.[78]

- Neglected and emerging audio formats and genres that have not been sufficiently collected and preserved should be identified and coordinated acquisition efforts adopted.

  Neglected audio formats and genres include materials so common that they may not seem valuable (e.g., advertising jingles, sound effects, background music). They may not conform to current criteria for aesthetic or historical value (ambient sound or industrial machine noise), or they may be useful primarily for research and diagnostic purposes in scientific fields (e.g., zoological studies, medicine). Such formats and genres fall beyond the range of current archival acquisitions policies. To gather input regarding neglected and emerging audio formats and genres that should be collected and preserved, the National Recording Preservation Board will seek expert advice on a continuing basis from audio-producing communities; scholars in sound studies and acoustics; and other relevant user communities, including sound artists, audio engineers, and scientific and industrial organizations.

- Corporate records and documentation on the production and distribution of sound recordings should be preserved and made accessible to researchers, preservation specialists, discographers, librarians, and archivists.

  Recording company documents can provide invaluable information to archivists and media scholars who study the history of recorded sound. Corporate records can be useful to preservationists not only in identifying recordings, but also in setting priorities for recordings to be preserved. Documentation of corporate recording activities will be essential to the compilation of an authoritative National Discography (Recommendation 3.1). Accurate information concerning production can help scholars interpret cultural trends. Many corporate records, however, have been lost or destroyed, and surviving records often are not accessible to outsiders.

  The Executive Leadership Committee on Recorded Sound Preservation (Recommendation 4.2) should encourage recording companies to preserve documentation about their recording activities. The Committee should discourage the destruction of documents until a panel of scholars and preservationists have had an opportunity to examine them and determine their relevance for preservation and scholarship. The Committee should encourage proper care and storage of documents, promote the donation of documents to institutions that can care for them, and discourage excessive restrictions on access to documents that have been placed in institutions. Archives and libraries should attempt to

[78] See http://www.cpb.org/features/americanarchive/.

acquire recording company corporate records whenever the opportunity arises.

Recommendation 4.4: Preservation of Twenty-First Century Recordings

> ***Develop strategies that will enable research libraries and archives to collect and preserve culturally significant recordings that are currently restricted by end-user license agreements.***

Many of the most recently created recordings are at the greatest risk of loss because of changes in the publication and distribution of sound recordings. Physical copies of commercial recordings are being rapidly replaced by digital audio files distributed online by third-party companies (e.g., iTunes, Amazon, eMusic) through end-user license agreements that limit uses to "personal, non-commercial, entertainment" only.[79] With some digital files, the purchase is not even classified as a "sale." Under the terms of the license, the content remains the property of the provider, and all uses are governed by the terms of the license. In the near future, it appears likely that much new music will be distributed via the "cloud," with users permitted access privileges only.

These licensing agreements effectively make it impossible for research libraries and archives to legally purchase copies of file-based recordings, while simultaneously preventing legal educational use of these recordings in the classroom and impeding preservation. Because licenses trump copyright law, section 107 and 108 provisions for libraries and archives—meant to serve the public good and ensure the availability of works over time—do not apply.[80] Furthermore, private collectors, who are most adept at discovering and documenting emerging genres, may never legally be able to place their digital audio files in an archive, no matter how rare or at risk their collections may be. If this licensing problem is not resolved soon, the bulk of the nation's culturally significant recordings from the twenty-first century will be held privately by companies and individual artists who may lack incentives or resources for long-term preservation.

Resolving these digital licensing issues will require a concerted effort on the part of library and scholarly organizations with a vested interest in preservation and access. Strategies that should be considered include the following:

- Advocating for educational use clauses in end-user license agreements.

  Representative library and scholarly organizations (e.g., ARSC, MLA, the Society for American Music) should work with music industry representatives to develop flexible yet mutually beneficial agreements that meet the needs of all constituencies.

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[79] See Amazon MP3 Music Service: Terms of Use, http://www.amazon.com/gp/help/customer/display.html?ie=UTF8&nodeId=200154280&pop-up=1.

[80] See 17 U.S.C. § 108(f)(4).

The National Recording Preservation Board's Executive Leadership Committee on Recorded Sound Preservation (Recommendation 4.2) should be charged with facilitating discussions, beginning with a review of licensing agreements and business models between recording companies and vendors, and followed by a sustained effort to develop agreements for educational use and preservation. In addition, the Board should work with library and scholarly organizations to broadly publicize the issue in order to reach independent artists and smaller online music distribution companies.

- Developing model agreements for licensing permanent digital music downloads to libraries and archives and initiating a pilot project to test outcomes.

  Currently, several library subscription services offer on-demand streaming access to a catalog of preselected music, as well as fulfillment services that provide a limited selection of downloadable music files, designed to meet the needs of public and smaller academic libraries. Research libraries and archives, however, must have the ability to individually select, purchase, and preserve commercially distributed digital audio files as permanent digital downloads (PDDs) to ensure preservation and meet the needs of a broad range of scholars.[81]

  A pilot project should be undertaken whereby one or more research libraries develop a consortial agreement with specific recording companies that would allow a library participating in the agreement to purchase preservation quality digital audio files (e.g., uncompressed WAV) for PDD. This option also might include a provision that allows on-demand streaming access outside the library as long as certain conditions are met, such as restricting access via user authentication to university faculty and students, and obtaining appropriate digital media licenses with SoundExchange; the American Society of Composers, Authors and Publishers (ASCAP); Broadcast Music, Inc. (BMI); and SESAC. The Executive Leadership Committee on Recorded Sound Preservation (Recommendation 4.2) should be charged with facilitating discussions to establish this project. The pilot project would lay the groundwork for future endeavors between public institutions and private interests by identifying major hurdles likely to arise with regard to licensing, downloading, access, and associated costs.

[81] According to the Harry Fox Agency, "A permanent digital download (PDD) is each individual delivery of a phonorecord by digital transmission of a sound recording (embodying a musical composition) resulting in a reproduction made by or for the recipient which may be retained and played by the recipient on a permanent basis. PDDs are sometimes referred to as full downloads or untethered downloads." See http://www.harryfox.com/public/DigitalDefinitions.jsp#20.

Recommendation 4.5: Fundraising for Sound Preservation

> ***Sustain the growth and success of the national preservation effort through coordinated fundraising strategies involving the National Recording Preservation Board, the National Recording Preservation Foundation, and grant-making programs.***

Funding for recorded sound preservation in the United States has been characterized as "decentralized and inadequate" (CLIR and Library of Congress 2010, 4). For commercially produced recordings, the responsibility for preservation lies with corporate rights holders. For orphan and unpublished works with no identifiable rights holder—most of the 46 million recordings held by American libraries, archives, and museums—funding is scarce. To mitigate this situation, all parties interested in historical sound recordings must take a more active role than they have taken to date in identifying resources and developing programs to fund the preservation of our audio heritage. Without such commitments, much of this heritage will be lost forever. The National Recording Preservation Board and the National Recording Preservation Foundation should lead in these endeavors, but these institutions cannot successfully assume this formidable responsibility alone.

Congress gave the Foundation, a nonprofit federally chartered corporation, the mandate to "further the goals of the Library of Congress and the National Recording Preservation Board in connection with their activities under the National Recording Preservation Act of 2000." Specifically, they empowered the Foundation to "encourage, accept, and administer private gifts to promote and ensure the preservation and public accessibility of the nation's sound recording heritage held at the Library of Congress and other public and nonprofit archives throughout the United States."[82]

The Foundation is authorized to receive annual appropriations from Congress not to exceed the amount that it raises through private sources and through state and local governments. In accordance with the National Recording Preservation Act, the Library of Congress should seek from Congress an allocation of funds to match the contributions that the Foundation receives.

The National Recording Preservation Board, working in conjunction with the Foundation, should take the following steps to facilitate fundraising for audio preservation:

- Encourage public and private grant-making organizations to expand their mandates to include preserving historically and culturally important sound recordings in the collections of publicly funded libraries, archives, and museums, and facilitating access to these recordings.

  The Foundation should actively consult with and disseminate information to public and private grant-making organizations in

[82] National Recording Preservation Act of 2000 (P.L. 106-474), Sec. 201.

an effort to encourage them to expand their mandates and address the challenges inherent in preserving the nation's sound recording heritage. The development of a broad range of funding programs covering both large- and small-scale preservation, access, research, and training projects should be considered to meet the needs of a wide range of stakeholders. The Foundation should provide guidance to grant-making organizations on technical issues, as well as on legal issues related to the provision of public access to sound recordings preserved by grant funds.

- Devise strategies to encourage contributions to fund recorded sound preservation from profit centers throughout the music and recording industry, including recording companies, artists' performance rights organizations, broadcasters, web audio services, and others.

  Web audio services might encourage their customers to make voluntary contributions to audio preservation when they pay to download songs. Contributions of as little as one cent—in many cases, this would increase the purchase price of a recording from 99 cents to one dollar—would add up to substantial amounts if enough people added the charge to their purchases.

- Engage public relations and fundraising professionals to guide and help sustain fundraising efforts, including the development of strategies to raise public awareness.

  It is imperative to the success of any fundraising and publicity campaign that professionals be engaged, whether on a pro bono basis or through a paid relationship, to guide and help sustain these efforts. These experts could be consulted to articulate goals and methods; assist with the development of public awareness strategies and resources; and assist with private and public fundraising initiatives, including grassroots efforts to maximize individual giving.

- Develop a roster of "artist ambassadors" to publicize and support efforts to preserve America's sound recording heritage.

  Musicians and other creators of sound recordings capable of drawing broad media coverage will be essential to the online campaign and fundraising activities of the National Recording Preservation Foundation. Public service announcements featuring recognizable faces and voices can enhance publicity efforts. During performance events, concerts, or celebrity-hosted parties around the nation, the artist ambassadors should convey the need to support the preservation of America's recorded sound history and culture.

- Engage industry professionals, stakeholders, educators, and members of the public in developing a range of activities that will contribute to overall public awareness of the history of recorded sound and related preservation issues.

A multigenerational approach, with an emphasis on resources and activities that make use of social networking, can reach a variety of audiences: educators, the media, the music and sound recording industry, private collectors, archives and libraries, government entities, and the general public. Possible activities to celebrate the history of recorded sound include tie-ins with established events—such as National Record Store Day, United Nations Educational, Scientific and Cultural Organization (UNESCO) World Day for Audio-Visual Heritage, African-American Music Appreciation Month, and the annual announcement of selections to the National Recording Registry.

- Encourage and promote programs that concentrate on the preservation of specific forms and genres of recordings in order to obtain support from businesses and individuals with vested interests in those forms or an appreciation of specific genres.

- Encourage funding to support cataloging projects.

  Even with the streamlined cataloging processes recommended in this plan (see Recommendation 3.3), additional funding is needed to process the massive amount of uncataloged audio material in library and archival collections. The Board should encourage funding agencies to support cataloging projects that encompass significant holdings in categories prioritized by the Board's expert work group on cataloging (see Recommendation 4.1). Agencies should also consider funding for nationally coordinated cataloging efforts in keeping with the prioritized categories.

- Encourage funding agencies to support the development of audio preservation service bureaus (i.e., for-profit or nonprofit entities that provide audio reformatting and restoration services), especially in underserved areas of the United States, to lower costs and expand the national preservation capacity.

- Encourage more foundations to establish simpler grant applications for smaller grants.

Recommendation 4.6: Assessment of the National Audio Preservation Program

Under the auspices of the Library of Congress National Recording Preservation Board, convene meetings or a conference of major stakeholders on preserving America's recorded sound heritage.

Periodic meetings that include major stakeholders will be helpful to assess progress made toward resolving preservation and access issues that have been identified within this plan. A national conference will strengthen communication and cooperation among all parties interested in overcoming obstacles to preserving and providing

public access to historical recordings, including rights holders, public archives, and grant-making organizations. The conference also will help publicize the successes of the national audio preservation program derived from this plan and call attention to ongoing long-term challenges for preserving the nation's recorded sound heritage.

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